This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

~~5 1 3 6 [illegible] 2~~

Harvard College Library

FROM

the department.

LANE

MEDICAL LIBRARY

1885

Exchange
Harvard Medical Library

5

TWENTY-FIRST ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

OF

NEW YORK

FOR THE YEAR ENDING DECEMBER 31, 1900

TRANSMITTED TO THE LEGISLATURE FEBRUARY 18, 1901

ALBANY
JAMES B. LYON, STATE PRINTER
1901

V. 3905
(LC. 1, 162)
[illegible]

HARVARD COLLEGE LIBRARY
MAY 1 1911
REJECTED BY
HARVARD COLLEGE
LIBRARY
CAMBRIDGE, MASS.

The Department.

131
V.21
1900

STATE OF NEW YORK

No. 65

IN ASSEMBLY

FEBRUARY 18, 1901

TWENTY-FIRST ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

STATE OF NEW YORK
EXECUTIVE CHAMBER
ALBANY, *February* 18, 1901

To the Legislature:

I have the honor to transmit herewith the twenty-first annual report of the State Board of Health, with appendix.

B. B. ODELL, JR.

97435

STATE BOARD OF HEALTH OF NEW YORK

MEMBERS OF THE BOARD

State Commissioners of Health, Appointed by the Governor and Senate

DANIEL LEWIS, M. D.	*New York City*
HON. OWEN CASSIDY	*Montour Falls*
S. CASE JONES, M. D.	*Rochester*

Health Commissioners from Cities, Appointed by the Governor

W. T. JENKINS, M. D.	*New York City*
FRED'K W. SMITH, M. D.	*Syracuse*
WALTER F. WILLCOX	*Ithaca*

Ex-officio Members

J. C. DAVIES	*Attorney-general*
E. A. BOND	*State engineer and surveyor*
ALVAH H. DOTY, M. D., *Health officer of New York, Quarantine, Staten Island*	

OFFICERS OF THE BOARD

DANIEL LEWIS, M. D., President	*New York City*
BAXTER T. SMELZER, M. D., Secretary	*Albany*
THOMAS A. STUART, Assistant Secretary	*Albany*
OLIN H. LANDRETH, C. E., Consulting Engineer	*Schenectady*
C. W. ADAMS, C. E., Consulting Engineer	*Utica*

State Superintendent of Registration and Vital Statistics

BAXTER T. SMELZER, M. D.	*As Secretary of the Board*

CONTENTS

PAGE
Report 1-20
Financial report 21-30
Sewer systems and sewage disposal:
- Village of Massena 33-34
- Village of Sag Harbor 35
- Village of Mount Vernon 35
- Village of Canajoharie 35-47
- Village of Saranac Lake 48-52
- Village of Fishkill Landing 52-61
- Village of Port Chester 62
- Village of Depew 62-67
- Village of Haverstraw 67
- Village of Plattsburgh 68
- Village of White Plains 68
- Village of Bath (jail sewer) 68
- Village of Cooperstown 69
- Village of Perry 69-75
- Village of Northside 76-79
- Village of Whitesboro 80-84
- Village of Sing Sing 84
- Village of East Syracuse 84-89
- Village of Mamaroneck 89-121

Investigations by order of the Governor:
- Eastern Paving Brick Co. (Catskill) 125-130
- City of Rensselaer (water supply) 131-142
- Town of Greenport (North bay) 142-150
- Greenwood lake 151-169

Special investigations:
- Croton-on-Hudson 173-179
- Fredonia sewers 180-184
- Congers (McGinnis lake) 184-188
- Village of Addison (sewers) 188-193
- City of Binghamton (Chenango and Susquehanna rivers) 193-198
- Conewango Swamp 198-206
- City of Poughkeepsie (gas nuisance) 206-211
- City of Watervliet (water supply) 211-223

Special investigations (*Continued*) PAGE

Town of Danube (Indian Castle station) 224–229
Village of Brockport (sewer) 230–236
Town of Rotterdam 237–240
Ancram Lead Mines (Hillside dairy) 240–244
Tanneries (Olean) 245–250
Indian Lake (water supply) 250–255
Borough of Brooklyn (water supply) 256–260
East Hampton (water supply) 261-263
Fort Plain (water supply) 263–270
Port Jervis (reservoir) 270–272
Amenia (water supply) 272–274
White Plains (water supply) 274–279
East Hampton (typhoid fever) 280–294
Village of Orient (typhoid fever) 295–298
Syracuse Institute for Feeble-minded Children (typhoid fever) 298–304
Mount Vernon sewage 305–308

Rules and regulations for the sanitary protection of public water supplies:

Village of Tarrytown 311–322
Village of Nyack 323–332
Village of Avon
Village of Livonia
Village of Geneseo 333–340
Village of Plattsburgh 340–348
Sing Sing prison, report on examination of 349–358
Barren Island
Cheektowaga 358-362
Food and drugs 365–408
Sanitary condition of the state 409–579

REPORT

ALBANY, *February* 15, 1901

To His Excellency BENJAMIN B. ODELL, JR., *Governor of the State of New York:*

Sir—The State Board of Health presents its twenty-first annual report as required by law.

During the past year the work of the Board has materially increased, and it is gratifying to note the desire on the part of the health authorities of the state to improve the sanitary condition of their respective municipalities by the adoption of modern system of sewers and sewage disposal plants and in their efforts to secure pure supplies of potable water.

SEWER SYSTEMS AND SEWAGE DISPOSAL WORKS

Plans were approved as follows:

Mount Vernon, Vernon park district, extension of certain sewers for temporary purposes.

Village of Massena, complete system of sewers.

Village of Port Jervis, extension of outlet sewer.

Village of Saranac Lake, trunk sewer to Baker bridge, to intersect at Trestle street Trestle street sewer. Change in original plan of complete system.

Village of Depew, change in sewer on French road.

Village of Canajoharie, complete system.

Village of Sag Harbor, change in system.

Village of Port Chester, complete system.

Village of Fishkill Landing, complete system.

Village of Cooperstown, sewer in Delaware street.

Village of Plattsburg, change in sewer system.

Village of Haverstraw, change in sewer system.

Village of White Plains, change in sewer system.

Village of Whitesboro, complete system.

Village of Northside, complete system.

Village of Depew, change in site of disposal works.

Village of Bath, sewer for county jail.

Village of Perry, complete system.

WATER SUPPLIES

Rules and regulations for the sanitary protection of public water supplies were adopted for the following municipalities: Avon, Geneseo, Livonia, Nyack, Plattsburg and Rome.

Investigations have been made as to alleged pollution of public water supplies of the village of Keeseville, city of Watervliet, town of Indian Lake, village of East Hampton, village of Canastota, Highland Mills, Central Valley and village of Fort Plain.

INVESTIGATIONS ORDERED BY THE GOVERNOR

In compliance with orders received from the Governor, the following investigations have been made:

Complaint concerning pollution of water supply of city of Rensselaer.

In matter of nuisance caused by plant of Eastern paving brick company at Catskill.

In matter of unsanitary condition of body of water known as "North bay" near city of Hudson.

Complaint of Greenwood Lake association concerning unsanitary conditions at Greenwood Lake, caused by the drawing down of the waters of the lake by a waterworks company of New Jersey.

INSTRUCTIONS TO LOCAL BOARDS OF HEALTH

In answering requests from local boards of health for advice and instructions as to their duties some 4000 letters were written, in addition to which the sanitary engineers, together with the several members of the Board and their medical experts, have devoted considerable time to investigations of complaints and advising local municipal authorities in the following cases:

Nuisance caused by Conewango swamp in Cattaraugus county.

As to prevalence of rabies in western part of state and at Scottsville.

Smallpox at Fort Edward, Dunkirk, Stockton, Tarrytown, Dobbs Ferry, Haverstraw, Oneonta, Rotterdam, Schenectady, Gloversville, Big Flats and Albany.

Scarlet fever at Irondequoit, Locke, Amenia and Palmyra.

Diphtheria at Columbia Center, Vestal, Batavia, Corning and Mamaroneck.

Typhoid fever at Orient and East Hampton, L. I.

Sewering facilities at Dannemora prison.

Nuisance caused by leakage of gas in the streets of the city of Poughkeepsie.

As to necessity for sewers in village of Perry.

Testing sewage disposal plant at the House of Refuge for Women at Albion.

Examination of site of proposed reservoir at Port Jervis.

Village of Fredonia, need of sewering facilities.

Investigation as to disposition being made of sewage from city of Binghamton.

Relative to pollution of certain streams in Olean by refuse from tanneries.

Unsanitary condition of the village of Brockport by reason of inadequate sewering facilities.

Nuisance caused by creamery at Ancram lead mines.

Nuisance caused by swamp lands in town of Rotterdam.

Examination of new reservoir for White Plains waterworks.

Unsanitary conditions in village of Addison.

CHEMICAL WORK OF THE BOARD

The work of the laboratory during the past year has consisted in the analyses of samples of drinking water which have been received from various sources; of miscellaneous articles which have been submitted from time to time, and of certain special investigations. Information has been given upon various subjects in response to inquiries concerning food and drug adulteration, hygiene, sanitary legislation and related matters. Through lack of funds available for the purpose it has been impossible to carry on any systematic inspection of the foods, drugs, fermented and spirituous liquors and illuminating oils on sale in the state as required by law.

During the year 57 samples of drinking water were received, mainly through local boards of health on application to the Board, and of this number seven samples were insufficient in quantity, or for some other reason unsuitable for analysis. The 50 samples examined and reported upon were from the following localities: Adams, Allegany, Angelica, Ausable Forks (four samples), Clarkstown, Fort Edward (two samples), Fort

Plain (three samples), Green Island (two samples), Highland Falls (two samples), Ilion, Iroquois (two samples), La Fargeville (three samples, Little Falls, Mechanicville, Middletown (three samples), Montour Falls (two samples), Newburgh, Newfield, New Lebanon (two samples), Oneonta, Penn Yan, Pittsford, Potsdam, Shortsville, Syracuse, Troy, Waterloo (four samples), Watervliet (three samples), Waverly, and not stated one sample. The analyses have included the usual determinations of chlorine, free and albuminoid ammonia, etc., deemed sufficient in most instances for ascertaining sanitary quality, and information concerning the source and surroundings of the sample has been requested in all cases and generally supplied, and such information has been taken into consideration in construing the analytical results. Particulars concerning these samples, with the analytical results in full, will be found in the report of the director.

An investigation of the nature and sanitary character of food colors was made in the early part of the year in accordance with the provisions of chapter 518 of the laws of 1899, entitled “An act to amend the agricultural law, relating to the manufacture and use of coloring matter in food products,” which act provides that “ no person or persons shall manufacture, sell or expose for sale any poisonous coloring matter for the coloring of food products of any kind, nor shall any person or persons use any poisonous coloring matter manufactured, sold, offered or exposed for sale within this state; nor shall any person or persons sell, offer or expose for sale any food product containing such poisonous coloring matter,” and this act made it the duty of the State Board of Health to “ cause samples of coloring matter that are exposed for sale upon the market for use in food products to be analyzed and report the results of such analysis to the Legislature at the next session." In compliance with this law samples of various articles prepared and sold as food colors were collected and examined and a report upon the subject transmitted on February 17, which will be found printed elsewhere.

During the latter part of June, 14 samples of crude sewage and of effluent from the purification plant in which the sewage is treated were received from the Western House of Refuge for Women at Albion, and exhaustive analyses were made of the same for the purpose of deciding upon the efficiency of the process before accepting the plant from the contractors. This work, which involved much labor, did not properly come within the scope of the duties of the Board, but it was undertaken on account of its seeming necessity and because no proper provision had been made for its performance. A report upon the subject, with the analytical data, will be found in the report of the director of the laboratory.

Miscellaneous examinations which have been made during the year have included analyses of preserved pumpkin, suspected to contain poison of some kind; buckwheat flour, tea, coffee, cream of tartar and other articles. The expense of the work for the year has been confined to the salary of the director, no moneys having been appropriated for the purchase of samples or other purpose. And for this reason, and as above stated, no systematic inspection of foods, drugs, oils and other articles which the Board is, by various laws, required to take cognizance of could be carried on, but all routine work and special matters which have been referred to the laboratory have received prompt attention, and all such work is fully set forth in the director's report, which appears elsewhere. It is greatly to be desired that suitable provision be made by the Legislature for establishing and adequately maintaining and operating a well-equipped laboratory, and the services of such inspectors and assistant chemists provided as may be necessary properly to carry on the chemical work of the Board, and the necessity for such provision has been repeatedly stated and is again emphasized.

SUMMER RESORTS

During the past few years numerous complaints have been received concerning unsanitary conditions existing at summer resorts, alleged to have caused typhoid fever and other diseases.

In view of the results of the several investigations made this year, there is warrant for the recommendation that a general inspection of summer resorts should be made by representatives of the Board, to determine as to the source of water supply, disposition of sewage and refuse, method of plumbing and such other matters as would tend to injuriously affect the health of the patrons of such resorts.

BUREAU OF VITAL STATISTICS

The Monthly bulletin issued by the Board seems to be the best that can be devised for the purpose, and enables the presentation each month of a great mass of statistics upon a subject of extreme interest to students of sanitary science, and also an array of practical facts of constant value in the effective administration of the health affairs of the state. It includes reports not only from the portions of the state under the supervision of the Board, but also from cities which are exempt by law from its control.

The importance of the registration branch of the Board's service can hardly be overrated. Its value is finding daily illustration in applications received from all parts of the country, also many from foreign countries, for certified copies of records of deaths, marriages and births needed in legal suits, in disputes concerning insurance and regarding the inheritance of property.

During the year some 160,00 certificates of births, marriages and deaths have been received for record and filing. While the Board is reasonably sure of securing records of most of the deaths occurring in the state by reason of the law prohibiting the burial or removal of a dead body until a certificate of death has been presented to the local board of health and a permit has been issued thereon for the burial or removal of the dead body, there seems to be a laxity on the part of clergymen and physicians to report marriages and births to the boards of health of the municipalities in which the events occur. While there has been a decided increase during the past year in the number of marriage and birth certificates received, due to constant correspondence on the subject with local boards of health, the record is not yet what the Board would desire, and it is hoped that during the coming year the clergymen and physicians of the state will cooperate with this Board in its efforts to secure complete returns of marriages and births.

In view of the varied and numerous duties imposed upon the Board in connection with some fourteen hundred municipalities of the state, it must be apparent to all that the appropriation of $35,000 per year is entirely inadequate. Inestimable services could be rendered to the state at large were the Board in a position to increase its force to such an extent that experts on sanitation and medical science could be designated to visit the different municipalities for the purpose of investigating and advising as to their needs.

SANITARY CONDITION OF THE STATE

There were 130,068 deaths reported during the year, including deaths not reported in the Monthly bulletins by reason of delay in sending them, making a death-rate of 18.5 per 1000 of the reporting population. This was the average rate of mortality for the past five years. The preceding year was one of low mortality, having had about 7000 fewer deaths.

The *infant mortality* was 4000 greater than that of 1899, this including deaths under the age of five years. The relative mortality was the same as that of the average of past years, viz., 30.5 per cent of the total of all ages. The increase from last year occurred in all parts of the state.

Zymotic diseases caused 13.7 per cent of the total number of deaths from all causes against the average of 14.6. This lowered relative rate was, however, chiefly due to the large mortality from influenza, which has not been recorded among zymotic diseases, under which are only classed those diseases of infectious character of common prevalence in this region.

Smallpox has existed to an extensive degree in all parts of the country for more than two years, and sporadic cases from neighboring states came into this state from time to time and developed the disease. During the first six months of the year there were 17 localities thus reached. In most of them only the single imported case occurred, it having been recognized at once and placed in seclusion. In two or three there were secondary cases, in one only there having been more than two or three; in Coeymans there was a repetition of last year's experience in the outbreak of smallpox among negro brick-yard laborers coming from the south, a number of whom were sick, but there was no spread to the community. For three months the state was free from the disease until in November a troupe of traveling minstrels coming from the south exhibited at eight places in the eastern part of the state before it was found that among them was smallpox. In three of these places smallpox occurred; in Albany a single case was detected November 18th; in Schenectady it was discovered December 1st, and in Gloversville December 14th. In the last two places several persons were exposed and developed the disease not only in their own municipality, but also in their vicinity, and it has been transported to other localities more remote—to Glens Falls and its vicinity, to Watertown and vicinity, and later, in January, to a lumber camp in Hamilton county. All physicians in the north and eastern part of the state have been notified of the possibility of its occurrence and of the means for recognizing it, which is necessary since the disease is not a familiar one to the general practitioner and its spread has been caused by their failure to recognize it, the general enforcement of vaccination not only by urging it as a precaution for all persons in a locality where the disease has appeared, but by emphasizing the necessity of carrying into effect our state law which requires school authorities to refuse admittance to the public schools of all unvaccinated children. This wise and beneficent law has been productive of ample results in protecting our population and contributed greatly to the security of the state, for exposed as this state is to smallpox by all neighboring and remote states in which smallpox is and has been for a long time prevalent, the need is urgent, and our protected condition is quite in contrast with that which unfortunately exists in some others. There is still much need, however, for fuller execution of this law, which is neglected still in many rural towns. Of the 14 deaths from smallpox during the year all occurred in New York city, except one in Clyde in July, and one in December in Schenectady and one in Gloversville.

Epidemic influenza (grippe) began its annual recurrence in December, 1899; in January it was estimated to have caused 1000 deaths, in February 1250, in March 3500, in April 3250, in May 1500, and in June about 400, making in all for the epidemic, lasting more than six months, an estimated mortality of 11,500. This is the most severe and prolonged epidemic that we have had since the series of annually recurring epidemics which began in December, 1889.

Typhoid fever was unusually prevalent, causing nearly 2000 deaths—350 more than the average. None of the sanitary divisions of the state failed to participate in the increase, but it was most marked in the maritime district.

Diphtheria, which has been presenting of recent years a course of decreasing mortality, has this year shown an increase. The number of deaths is, however, still 500 below the average.

Measles has nearly double the mortality of the year before. The disease has prevailed to excess in all parts of the state.

Scarlet fever, on the other hand, has been less than usually prevalent, and has a mortality below the average for the year.

Diarrheal diseases caused about 8000 deaths, or the average of the past five years. There is not great variability in the deaths from this class of diseases from year to year, but in general there is a betterment in the long run. Of more remote series of years these diseases caused 7 per cent of the total mortality of the year; we have more recently a saving of about 500 deaths a year and but little more than 6 per cent of all deaths. Generally the bulk of these deaths occur in midsummer and in the large cities; this year there was a remarkable diarrheal mortality in August and

September and even later in the rural parts of the state. This is one of the noteworthy features of the disease movement of the year.

Of the lesser diseases of this zymotic class there was no material fact worthy of special record. *Cerebro-spinal meningitis* caused an unusually large mortality in the year preceding, but has decreased materially in 1900.

Consumption shows no departure from the customary yearly mortality, which varies little year by year from about 13,000 deaths annually.

Acute respiratory diseases are credited with causing nearly 20,000 deaths, the largest number by far of any group of diseases, larger than the entire zymotic group. The reason for this increase is due to the fact that the deaths from *epidemic influenza* fall largely in this group, most of the deaths from which are caused by its influence on the respiratory organs. To some extent it affects the record of deaths from all local diseases, the nervous system being affected next to the respiratory. The large unclassified group, however, receives a considerable number, and this was likewise increased this year beyond the average.

TUBERCULOSIS COMMITTEE

The tuberculosis committee of the Board summarize their work for the year as follows:

The report of the tuberculosis committee of the State Board of Health for December 23, 1900, will be in the nature of a review of the whole year's work, with some suggestions as to the source of danger.

It seems proper here to say that the committee have done a very large work, as shown in our summary, in the way of cleaning out infected animals from many herds for the owners who have appealed to us for aid, and this work has been done against greater obstacles than any which have confronted the committee in any year since 1892, when the State Board of Health began the work of suppressing bovine tuberculosis and in educating the public in the better methods of preventing or lessening this great destroyer of human and animal life.

Tuberculosis is a disease which should be considered preventable, and is preventable to all who are wise enough to separate all infection of tubercle bacilli from their food, habitation and other environments. If possible all tuberculous human beings, and especially tuberculous animals, should be separated from the close contact with non-infected animals.

This proposition is the natural deduction obtained from the work of sanitary science since 1882, the time of Koch's discovery of the tubercle bacillus as the living entity which alone can produce tuberculosis.

While to some minds it may seem impossible that bovine tuberculosis can ever be entirely eradicated from our dairy herds because of reinfection by human attendants, new additions of diseased cattle to the herd or from other sources, yet we maintain that constant vigilance will ultimately secure immunity, and those who will carefully apply the tuberculin test from time to time, in conjunction with other methods of detecting tuberculosis, and promptly separate and dispose of all the reacting animals in a safe and legitimate manner, may practically and permanently clear their dairy herds of the disease.

The special investigating committee on tuberculosis and other animal diseases presented a report at the last session of our Legislature which, in our judgment, did much harm in misleading the minds of the farmers and breeders in our state, inasmuch as their report apparently disapproved of the policy and teaching of our Board, which has insisted that all tuberculin reacting animals should be separated, quarantined and destroyed. We quote a sentence contained in the conclusion of their report, as follows: "The evidence therefore seems very abundant that the state can better use its funds along the lines of educational work and requiring better sanitary conditions in the stables rather than following the present policy of destroying all animals showing a reaction under the tuberculin test."

This conclusion of the committee is at variance with recognized scientific facts which the experience of the State Board of Health has verified through the tuberculosis committee. While it is true that good sanitation tends to preserve the vigor of good health yet if infected animals are confined with healthy ones even though the stables be palatial and perfect, the disease will surely spread; neither will the proper sanitary condition of stables be sufficient to prevent such infection.

We strongly maintain that the better policy for the state is to expend an adequate amount of its funds for educating the farmer in the most approved methods of eradicating tuberculosis from herds, thoroughly and completely examining and testing them when necessary, and also instructing our local health authorities in the best methods of enforcing sanitary rules and regulations in all our dairy stables.

Perfect immunity from contact with infectious animals is the only guarantee of protection of our herds against the spread of tuberculosis, and the great incentive for carrying on this work should be the duty of giving to the public a pure, clean and wholesome milk supply.

Another obstacle which the tuberculosis committee have had to combat was the doubt expressed in the special investigating committee's report to the Legislature as to the transmissibility of bovine tuberculosis to human beings, and to the relative virulency of the bovine and human tubercle bacilli.

Therefore it became necessary for the tuberculosis committee to furnish new evidence on these points. Dr Veranus A. Moore, bacteriologist New York State Veterinary college, Cornell university, was asked to reply to a number of questions concerning this matter, and his reply is herewith inserted, as follows:

"NEW YORK STATE VETERINARY COLLEGE, CORNELL UNIVERSITY
"ITHACA, N. Y., *October* 19, 1900

"*Chairman Tuberculosis Committee, New York State Board of Health:*

"Dear Sir—I have the honor to reply to your communication of July 30th, answering certain questions which you ask concerning bovine and human tuberculosis. I have made a few experiments as suggested by you, the results of which are used in the replies. For convenience I will answer the questions in the order that you put them, viz:

"'1 What is the comparative virulence of bovine and human tubercle bacilli on the lower animals?'

"In a careful and somewhat extended investigation by Dr. Theobald Smith, of Harvard university, it was shown that the bovine tubercle bacilli were much more virulent for rabbits and cattle than the human bacillus, but for the susceptible guinea-pig this difference was not so manifest. He has calculated approximately that the virulence of sputum bacilli to bovine bacilli is as 1 to 20, or as 1 to 30 when tested on rabbits. Professor Adams, of McGill university, and Dr. Pierson, of the University of Pennsylvania, have confirmed Smith's result that, for the lower animals, the bovine is more virulent than the human tubercle bacilli. Inoculations which we have heretofore made have shown that the bovine bacillus kills rabbits more promptly than the human one. In our experience, however, the guinea-pig has succumbed as promptly when inoculated with the human as with the bovine bacillus, either in pure culture or in diseased tissues and sputum. The evidence based on the results of all the carefully conducted experiments shows that, for the lower animals, the guinea-pig being the only exception, the relative virulence of bovine bacilli is higher than that of the human bacilli.

"'2 Is the same disease produced in rabbits and guinea-pigs by inoculation and feeding experiments with milk from a tuberculous cow which contains the tubercle bacilli and from tuberculous sputum of the human subject?'

"Tuberculosis in rabbits and guinea-pigs is usually characterized by enlargement of certain lymphatic glands, usually those in the groin or axilla, tuberculous infiltration of the liver and spleen, and miliary tuberculosis of the lungs. Usually in the rabbit the glands and lung lesions are first to appear, and frequently the animal dies before the liver and spleen lesions are manifest. In the guinea-pig the lesions as a rule first appear in the liver and spleen and later in the lungs, but ordinarily the animal dies before the lung lesions are well established. In our experience, the same disease, i. e., a disease characterized by the same combination of lesions, is developed in these animals after the inoculation of either the milk containing tubercle bacilli from diseased cows or the sputum of tuberculous people. It is important to note, however, that inoculation with these substances often results in septic infection due to other bacteria present in the milk and sputum, and which not infrequently cause complicating lesions and sometimes the death of the animal before the characteristic tuberculous lesions are fully established. It should be stated that the milk of tuberculous cows does not contain constantly tubercle bacilli unless the udder is badly diseased. This organism, however, has been found in many cases to occur at irregular intervals in the milk. Tuberculosis is not so readily produced in rabbits by feeding tuberculous sputum as it is in the guinea-pig. There seems to be considerable difference between the susceptibility of the rabbit and the guinea-pig to these organisms. It has been shown by certain investigators that tubercle bacilli in the recent tuberculous lesions in man are much more virulent than those found in the sputum of the same individual. My own experiments have been restricted to the inoculated method of infection, with results similar to those stated above. Our present knowledge of the subject warrants the general statement that the disease produced in these two species of experimental. animals by tuberculous cow's milk and human tubercular sputum is practically the same.

"'3 Cannot the infection of both bovine and human tubercle bacilli be transmitted to the lower animals?'

"As stated in the previous answer (2) the guinea-pig can be infected with the tubercle bacilli, either in pure culture or tuberculous tissue, from either the bovine or human species. In all the other species of the lower animals the disease produced by the inoculation of tubercle bacilli from these sources shows that there are certain differences. In those animals inoculated with the bovine bacillus the resulting disease is more generalized and rapid in its course than when they are inoculated with the sputum bacilli. In other words, the bovine bacilli have infected certain species, producing a generalized disease, while the human organism produced very slight local disturbances.

"'4 Can you give any proof that the use of tuberculin does not cause shrinkage in the milk in non-reacting cows?'

"A large number of test examinations have been made by many experimenters to determine this question. The normal records of most cows show more or less variation in the amount of milk and fat produced daily; for this reason it is exceedingly difficult to determine whether the tuberculin produces any effect or not, as the difference in the daily quantity of milk produced does not exceed the normal variation. In the experiments made by Dr. Law, reported in Bulletin No. 82, Cornell agricultural experiment station, the variation in the quantity of milk before and after the tuberculin test in healthy animals does not vary more than the quantity of milk in healthy untested animals during the same time. To procure additional evidences of the practical non-effect of tuberculin upon the quantity of milk I have made several tests, two of which are appended, viz:

" Cow No. 1—For the week preceding the injection of the tuberculin the daily quantities of milk produced were as follows: 25.3, 26.2, 26.5, 26, 26.5, 23, 27.1 pounds, giving a total for the seven days of 180.6 pounds. For the seven days following the injection of 2 c. c. of tuberculin, the daily quantities were 21.2, 24, 25.5, 27.9, 26.2, 25.4, 23.4 pounds, giving a total for the seven days of 173.7 pounds.

" Cow No. 2—The daily quantities of milk produced during the same length of time were 25.8, 26, 25.9, 29.7, 23.5, 29, 28 pounds, giving a total of 187.9 pounds. For the seven days after the injection of the tuberculin the daily quantities were 26.5, 26.8, 28.3, 28.5, 27.5, 28.3, 27.4, giving a total of 193 pounds for the seven days. In both cases the temperature, pulse and respiration remained normal. We feel justified in stating that if there is any effect exerted by the tuberculin upon the quantity of milk or butter fat produced after its injection, it is so slight that it can not be considered as interfering with the product of the animal. The best authorities on the subject of tuberculin testing are unanimous in the opinion that tuberculin in the regular dose quanity (2 c. c. diluted tuberculin) is harmless for healthy animals.

" Very respectfully submitted,

" V. A. MOORE "

This testimony from the actual experiments of Dr. Moore and others which he quotes should be accepted as a complete vindication of the position maintained by this committee—that the use of tuberculin is not dangerous when applied to healthy animals, and that the danger to the public health from the products of tuberculous cattle have not been greatly exaggerated by this Board.

The tuberculosis committee since January 1, 1900, to January 1, 1901, have reported the tuberculin testing of 3247 head of cattle, comprising 2816 Grades, 222 Jerseys, 125 Holsteins, 77 Durhams, and 7 Guernseys. Of the whole number tested 184 head have been condemned, comprising 157 Grades, 24 Jerseys, 3 Holsteins. Of those condemned 142 head have been destroyed, of which 129 were Grades, 12 Jerseys and 1 Holstein.

During the year 1338 letters have been written, and 2479 circulars relating to the disease have been distributed among cattle owners.

During the year awards have been granted to the following owners, the average award per head being $22.32:

Name and address	Number slaughtered	Amount awarded
E. and L. Ladue, Glen Cove	7	$347 50
T. J. Kennedy, Congers	6	140 00
D. Ready, East Onondaga	1	25 00
Chris Schafer, Boonville	1	23 00
M. A. Tripp, Shelby	3	47 50
T. B. Merchant, Binghamton	2	45 00
D. Hoyt, Windsor	1	20 00
W. B. Cleves, Dickinson	1	20 00
A. B. Knowles, Peru	1	15 00
D. Sullivan, Windsor	8	100 00
J. Pfeudler, Boonville	1	17 50
D. A. Carr, Long Eddy	1	18 50
D. Wingert, Boonville	7	157 75
G. Eaton, Unionville	14	323 50
T. Eggleston, Windsor	4	45 00
J. Doyle, Kirkwood	5	62 50
W. Marshall, Boonville	1	20 00
	64	$1,428 25

CHEEKTOWAGA

The several establishments for the manufacture of fertilizer and the reduction of garbage located at Cheektowaga are permitted to conduct their business at that place under sanitary rules established by this Board, which is represented by an inspector who makes daily visits to the different works.

The plant of the Milsom rendering works and the Baynes garbage reduction plant were destroyed by fire late in the year. Plans for rebuilding both plants have been approved by this Board, and in a reconstruction of the works advantage will be taken of all the latest improved methods for the sanitary conduct of the business of both plants.

BARREN ISLAND

The representative of this Board at Barren island reports that during the past year the work at the plants of E. Frank Coe, McKeever Bros., Peter White's Sons, and the Sanitary utilization company, has been conducted in a very satisfactory manner, there being little, if any, cause for complaint from residents of nearby places.

In the appendix will be found the reports of the sanitary and engineering experts of the Board upon the different investigations made by them during the year.

Respectfully submitted,

DANIEL LEWIS
President
BAXTER T. SMELZER
Secretary and Executive Officer
OWEN CASSIDY
W. T. JENKINS
Commissioners
EDWARD A. BOND
State Engineer and Surveyor
JOHN C. DAVIES
Attorney-General

APPENDIX

TWENTY-FIRST ANNUAL REPORT

OF THE

STATE BOARD OF HEALTH

Financial Report from October 1, 1899, to October 1, 1900

SALARIES

1899.			
Nov.	1.	B. T. Smelzer, October salary...........	$375 00
		Clerk hire for October..................	1,756 09
Dec.	1.	Clerk hire for November...............	1,549 99
		B. T. Smelzer, November salary........	375 00
1900.			
Jan.	1.	B. T. Smelzer, December salary........	375 00
		Clerk hire for December...............	1,550 02
Feb.	1.	Clerk hire for January................	1,737 59
		B. T. Smelzer, January salary..........	375 00
March	1.	B. T. Smelzer, February salary.........	375 00
		Clerk hire for February................	1,549 99
April	1.	Clerk hire for March...................	1,676 72
		T. A. Killip, salary, Feb. 20 to Mar. 20..	100 00
		B. T. Smelzer, March salary............	375 00
May	1.	B. T. Smelzer, April salary............	375 00
		Clerk hire for April....................	1,424 99
		T. A. Killip, salary, Mar. 20 to April 20..	100 00
June	1.	Clerk hire for May....................	1,425 02
		B. T. Smelzer, May salary..............	375 00
		T. A. Killip, salary, April 20 to May 20..	100 00
July	1.	B. T. Smelzer, June salary.............	375 00
		Clerk hire for June....................	1,425 02
		T. A. Killip, salary, May 20 to June 20...	100 00
Aug.	1.	T. A. Killip, salary, June 20 to July 20..	100 00
		B. T. Smelzer, July salary.............	375 00
		Clerk hire for July....................	1,615 99

1900.				
Sept.	1.	Clerk hire for August	$1,450	29
		T. A. Killip, salary, July 20 to Aug. 20	100	00
		B. T. Smelzer, August salary	375	00
Oct.	1.	B. T. Smelzer, September salary	375	00
		T. A. Killip, salary, Aug. 20 to Oct. 1	133	33
		Clerk hire for September	1,364	15
			$23,759	19

TRAVELING EXPENSES

1899.				
Oct.	3.	S. Case Jones	$40	00
		F. W. Smith	48	15
		F. C. Curtis	87	63
		T. J. Bradley	15	04
		W. G. Tucker	22	33
		T. A. Stuart	12	19
	17.	John P. Martin	9	01
	31.	E. A. Bond	21	96
Dec.	4.	F. W. Smith	72	63
		S. Case Jones	38	10
	9.	Owen Cassidy	138	64
		W. F. Willcox	51	94
		John P. Martin	23	31
		Daniel Lewis	125	84
	28.	L. F. Rolfe	21	69
1900.				
Jan.	5.	B. T. Smelzer	49	60
	15.	John P. Martin	12	56
	31.	W. G. Tucker	17	40
Feb.	19.	Owen Cassidy	100	30
March	9.	F. W. Smith	32	39
	30.	John P. Martin	15	90
		T. A. Killip	39	92
		W. F. Willcox	28	70
April	23.	S. Case Jones	116	60

1900.			
May	1.	T. A. Killip	$67 45
		B. T. Smelzer	134 32
	7.	T. A. Stuart	26 24
	12.	Owen Cassidy	76 25
	16.	W. T. Jenkins	17 20
		Daniel Lewis	125 89
	29.	T. A. Killip	63 88
		B. T. Smelzer	48 75
		F. W. Smith	61 58
June	8.	T. A. Stuart	28 96
		S. Case Jones	103 40
	29.	Geo. G. Champlin	1 70
		Philip S. Hurd	13 10
July	5.	T. A. Killip	90 26
		B. T. Smelzer	69 43
	18.	A. K. Cole	32 93
	23.	Owen Cassidy	111 16
	28.	E. A. Bond	22 20
		Daniel Lewis	46 42
Aug.	1.	T. A. Killip	63 61
		S. Case Jones	35 70
	20.	B. T. Smelzer	77 56
Sept.	8.	T. A. Stuart	20 19
	10.	T. A. Killip	16 88
		F. W. Smith	55 85
	25.	John P. Martin	91 48
			$2,644 22

INVESTIGATIONS

1899.			
Oct.	3.	O. H. Landreth	$287 40
		C. W. Adams	346 78
		T. J. Bradley	125 00
		A. L. Mattimore	66 60
	17.	O. H. Landreth	50 75

1899.			
Nov.	27.	Bender Laboratory	$5 00
Dec.	29.	Bender Laboratory	2 00
1900.			
Jan.	5.	W. G. Tucker	5 48
Feb.	19.	Bender Laboratory	5 00
March	9.	John P. Martin	225 60
	30.	John P. Martin	30 26
		C. W. Adams	93 06
April	23.	A. W. Elting	2 00
May	7.	A. W. Elting	80 00
June	8.	J. A. McCrank	10 00
		F. C. Curtis	80 39
July	18.	A. W. Elting	100 00
		A. W. Elting	12 50
Aug.	3.	Chas. B. Potter	21 00
		Garry T. Stone	31 58
		Dr. W. H. May	5 00
	17.	John P. Martin	165 60
		M. B. Davis	17 50
		Geo. Bidwell	17 50
Sept.	10.	C. W. Gay	95 38
		A. W. Elting	5 00
		J. C. Carson	75 00
		C. W. Adams	135 49
	24.	Garry T. Stone	74 96
		O. H. Landreth	347 71
	25.	O. H. Landreth	241 71
		Bender Laboratory	60 00
		J. P. Martin	117 20
		A. S. Patten	13 36
			$2,951 81

OFFICE EXPENSES

1899.			
Oct.	3.	Great Bear Spring Co	$5 40
		G. W. Hawkins	2 50
		Brandow Printing Co	88 76
		Hudson River Telephone Co	10 69
		Hudson River Telephone Co	10 64
		Western Union Telegraph Co	6 35
		Lemcke & Beuchner	91 41
		Library Bureau	150 00
	12.	National Press Intelligence Co	18 55
		T. S. Buck	1 93
		G. A. Birch	3 80
		Brandow Printing Co	395 44
		Western Union Telegraph Co	3 00
		Chas. E. Filkins	1 00
	17.	Hudson River Telephone Co	60 00
		Western Union Telegraph Co	3 66
		Hudson Valley Paper Co	1 10
		Lea Brothers & Co	7 50
Nov.	27.	Municipal Gas Co	6 75
		G. A. Birch	3 00
		Brandow Printing Co	75 80
		Smith Premier Typewriter Co	3 00
		United Typewriter and Supply Co	12 50
		Hudson River Telephone Co	15 59
Dec.	4.	Western Union Telegraph Co	12 47
		G. A. Birch	3 00
		Henry Mayell & Son	8 40
	29.	Western Union Telegraph Co	3 00
		Hudson River Telephone Co	9 64
		J. Warren Mead	16 15
		Brandow Printing Co	123 07
1900.			
Jan.	5.	Gustav Reinhold	5 55
		G. A. Birch	2 95

1900.

Jan.	5.	Western Union Telegraph Co	$19 78
	15.	Times-Union	6 50
		Journal of Comparative Medicine	3 00
	31.	Lea Brothers & Co	2 50
		David F. Dobbin	3 50
		Great Bear Spring Co	60
		Hudson River Telephone Co	22 64
		Brandow Printing Co	106 55
		The Argus Co	7 50
		F. A. Davis Co	5 00
Feb.	19.	G. A. Birch	3 15
		Lemcke & Beuchner	13 50
		Chas. M. Stuart	6 50
April	23.	Engineering News	5 00
		Brandow Printing Co	78 74
May	7.	Hotel Imperial	5 00
		National Provisioner	3 00
		Matthew Bender	15 00
		Western Union Telegraph Co	10 93
	16.	Lang Stamp Works	3 80
		G. A. Birch	2 90
		Harris, livery	8 00
	23.	State and provincial boards of health	10 00
	29.	Brandow Printing Co	124 80
		Hudson River Telephone Co	11 39
June	29.	Western Union Telegraph Co	8 20
		G. A. Birch	3 15
		Harris, livery	3 00
		Western Union Telegraph Co	3 00
		Sampson, Murdock & Co	3 00
Feb.	19.	Albany News Co	2 15
		Hudson River Telephone Co	9 94
		Western Union Telegraph Co	1 35
March	9.	The Sanitarian	4 00
		Brandow Printing Co	367 17

1900.			
March	29.	Lang Stamp Works	$21 70
		Matthew Bender	5 00
		Albany Medical Annals	1 00
		Hudson River Telephone Co	18 74
		Western Union Telegraph Co	8 54
		Brandow Printing Co	850 01
		C. E. Thompson	5 00
April	23.	Hudson River Telephone Co	18 19
		Engineering Record	5 00
		G. A. Birch	5 85
		Western Union Telegraph Co	14 83
		Henry D. Keefer	5 00
		National Press Intelligence Co	27 95
June	29.	Brandow Printing Co	124 72
July	18.	Western Union Telegraph Co	16 15
		G. A. Birch	3 05
		National Press Intelligence Co	11 85
		Lang Stamp Works	3 75
		Brandow Printing Co	108 97
		Capital City News Co	6 90
	28.	Hudson River Telephone Co	33 90
		Hotel Lincoln	5 00
Aug.	1.	Hotel Imperial	5 00
		Prospect Park Hotel	5 00
		Lea Brothers & Co	7 50
		Lemcke & Beuchner	3 50
	17.	Annesley & Co	3 50
		Brandow Printing Co	463 42
		Western Union Telegraph Co	4 47
		Hudson River Telephone Co	13 10
		G. A. Birch	3 05
Sept.	10.	Western Union Telegraph Co	3 60
	26.	R. L. Polk & Co	6 00
		W. M. Whitney & Co	38 00
		G. A. Birch	3 15

1900.		
Sept. 26.	Western Union Telegraph Co.	$3 00
	Brandow Printing Co.	154 59
	Hudson River Telephone Co.	15 85
		$4,080 67

TUBERCULOSIS

Salary of tuberculosis commissioners and expenses incurred in employment of veterinarians for the testing and destruction of cattle affected with tuberculosis from August 23, 1899, to January 23, 1900	$3,268 19

PLANS

FOR

SYSTEMS OF SEWERAGE

AND

SEWAGE DISPOSAL

MASSENA, N. Y.

Separate sewer system

Plans providing for a separate system of sewers were approved by this Board February 14, 1900.

Both the Raquette and Grasse rivers flow through the village in an almost due easterly direction, and so as to have almost half the village area between them.

The sewage of the northerly half of the village will be discharged by gravity into the Grasse river, and that of the southerly half by the same means into the Raquette river.

Provision has been made for a chemical precipitation disposal plant at each outlet whenever their installation may become necessary.

The present population of the village is, approximately, 1800, but on account of the location here of the power plant of the St. Lawrence power company's canal—the largest power plant in the United States except that at Niagara—it has been deemed expedient to plan the sewer system for a population of 30,000. The engineer's report follows:

REPORT

MASSENA, N. Y., *September* 12, 1899

To the Honorable the Board of Health of the State of New York:

Gentlemen—I herewith submit plans for a system of sewerage for the village of Massena for your approval.

When the matter was first taken up with the village trustees, after carefully looking over the ground, it was decided to submit plans for a separate system as being the most advantageous and economical, the village having a natural drainage into the Grasse and Raquette rivers, which dispose of the surface water.

In designing the system it has been divided into three districts, designated on the plans as A, B and C.

District A, on the north bank of the Grasse river, has a population of approximately 500, and the main sewers are designed for an estimated population of 10,000. The outlet for this district is through a 12-inch pipe, and it discharges into the Grasse river below the upper dam.

District B, on the south bank of the Grasse river, has a population of approximately 1000, and the main sewers are designed for an estimated population of 12,000, for in this district, on account of the large population and more rapid growth, the outlet has been carried to a point below the lower dam, where it discharges into the Grasse river through an 18-inch pipe.

District C, on the north bank of the Raquette river, has a population of approximately 300, and the main sewers are designed for an estimated population of 8000. The outlet for this district is into the Raquette river through a 15-inch pipe.

No system has been designed for that section of the village situated south of the Raquette river, as there seems to be no immediate demand for sewers, it having a comparatively small population; and as it would call for a separate outlet, it did not seem necessary to include it in this plan.

Sewers have not been shown on certain proposed streets in Districts B and C, as there is some uncertainty regarding their final location.

All lateral sewers are designed for an estimated population of 30 to an acre, and all sewers to dispose of 30 cubic feet per person in 24 hours.

The sewers are intended for house sewage only, all roof and ground water being excluded.

Very truly yours
W. F. BATES

SAG HARBOR, N. Y.

Amended plans

Plans providing for a change of location of the outlet of the system from that shown on the plans originally approved by this Board were approved February 14, 1900, with the understanding that in case disposal works are later deemed necessary, the original plan or another equally satisfactory to the State Board of Health will be demanded.

MOUNT VERNON, N. Y.

Change of plans

On February 14, 1900, plans were approved for a temporary change of the outlet sewer of the Vernon Park district so as to discharge the sewage into Eastchester creek, temporarily, by a shorter route than was originally planned and approved.

CANAJOHARIE, N. Y.

Separate sewer system

Plans for a separate sewer system and disposal works were approved by this Board February 14, 1900.

The plans provide for the purification of the sewage during the dry months by means of a septic tank. At other times, or when the flow of water in the Mohawk river is of sufficient volume to accommodate the sewage without becoming dangerously polluted, the sewage is to be discharged through two separate outlets directly into the river.

The report of F. E. Crane, C. E., which accompanied the plans, is hereto appended, together with the report of Wm. B. Landreth, C. E., concerning the disposal works.

REPORT

AMSTERDAM, N. Y., *July* 21, 1899

To the Trustees of the village of Canajoharie, N. Y.:

The village of Canajoharie lies on the south bank of the Mohawk river, contains about 2500 inhabitants and covers an area of about one and one-half square miles. It is about equally divided by Bowmans creek. With the exception of the river flats, the slope of the ground is generally steep towards the river and towards the creek, rising to an elevation of 250 feet above the river within the village limits. The alluvial soil of the river flats terminates abruptly in slate and limestone rock on the slope of the hills.

The present drainage of the village is partially provided for by a state drain from Church street to the creek and a few other drains, whose discharges and all surface run-off reach the river through the creek or two state culverts under the canal, located one easterly about three-eighths of a mile and one westerly about one-half of a mile from the creek.

Owing to the generally steep grades causing a ready discharge of surface water to these three outlets and the large amount of rock to be encountered in the excavation, a modified separate system of sewers was at once proposed and is recommended. As separate sewers I have assumed 100 gallons of sewage per capita discharged in 12 hours, and six persons per lot of 50 feet frontage. The sewers are also designed to carry off a part at least of the roof water. Along all the outlying streets I have allowed for one house 50 feet by 20 on each lot of 50 feet frontage and one-half inch rain per hour. In the center of the village I have allowed for one such building on each 25-foot lot and one inch of rain per hour. I consider this increase in the centrally located streets necessary, because in recent years business and other blocks are designed with roofs sloping towards the central portion of the building in such a manner as to force all the rain water into the conductors. The introduction of rain-water from the roofs into the sewers having such steep grades as many of yours will have will serve, I believe, to keep such sewers in good condition without flush tanks. An inspection pipe has been placed at each dead end so that when your village has been supplied with hydrant water the sewers may be washed out, if desired, by the use of hose. In other places flush tanks are shown as a part of the plan, but no provision for water need be considered at present, as the demand for water will probably cause a system to be built before these outlying sewers are constructed. At a few points, as at the ends of the Front street and Cliff street lines, special means of supplying the flush tanks should be considered as soon as these lines are constructed. The tanks are designed to have a capacity of 200 gallons.

The drawings show a Miller automatic siphon in place, this being the modern pattern of the flush tank that has given the best satisfaction among those with which I have had experience, although there are several other makes that operate on the same principle and differ only in the form of the pipe releasing the air or discharging the water.

The two portions of the village on each side of the creek can be sewered respectively to two points marked "Outlet No. 1" and "Outlet No. 2." Whenever it may become necessary to bring the sewage to one point for treatment before discharging into the river, a 10-inch iron pipe may be laid as an inverted siphon across the creek just above the Main street bridge, which pipe will be sufficient to carry all the sewage from the east side of the creek over to West Main street, thence along West Main street to Outlet No. 1, Outlet No. 2 remaining a rain-water overflow for that district.

For the sewerage of Pearl street and the few adjacent streets between the river and the canal I have shown a separate outlet, although these streets can be connected with Outlet No. 1 by a long line across the flats from Market street, there being three feet fall.

Following the instructions of your Board, I have made an estimate of the cost of the entire sewer system for all the streets within the village limits, and find that for the 41,000 lineal feet required the cost would be $39,000. But this includes some long expensive lines that would not be considered for several years to come. To construct Outlet No. 1 and about 15,000 feet of sewers on your principal streets would cost about $19,000, and would probably meet your present need. To do this it would be necessary to put in the 10-inch iron pipe across the creek and to make a temporary overflow into the creek for heavy storms. This overflow would come into use so seldom and at times when the creek is high that I believe it would cause no annoyance.

With this report I submit:

(1) Map of the village, showing the sizes and location of sewers and the location of structures.

(2) A sheet of the profiles of the streets, showing the present surface of the ground in black; the grade of the sewer in red lines; the elevation of points of change of grade in red figures, and the fall per 100 feet in red figures followed by the symbol %.

(3) Drawings of a manhole, flush tank inspection pipe and outlet manhole.

(4) Tracings, which are copies of all the above plans.

(5) Specifications in duplicate, including blank forms of proposals, contract and bonds.

F. E. CRANE, C. E.

CORTLAND, N. Y., *November* 1, 1899

F. E. CRANE, *Civil Engineer, Amsterdam, N. Y.:*

Dear Sir—In accordance with your request of a recent date, I have examined the plans for the sewerage of the village of Canajoharie, N. Y., made by you. I have visited that village and walked over the line of the proposed outlet sewer known as "Outlet A," and I submit the following report regarding a suitable plan for the treatment of the sewage to be collected by the proposed sewers.

GRADE AND ROUTE OF THE OUTLET SEWER

The proposed outlet sewer passes under the Erie canal a short distance west of the highway leading from Canajoharie to Palatine bridge, and enters the Mohawk river about 1200 feet above the river bridge. At the foot of the north canal embankment the sewer grade is six feet below the river flats, and from there to the river bank the cutting shown on the profile of the outlet sewer is from five to six feet in depth. The grade of the outlet sewer is as the grades of the submains and the proposed deepening of the Erie canal will allow.

The water in the Mohawk river in floods rises nearly to the top of the Erie canal embankment, or 13 feet above the proposed grade of the outlet sewer, and often remains at that level for several days at a time. Works for the treatment of the sewage to be effective must be so designed and constructed as not to be damaged by the rise of the river.

DISPOSAL BY DILUTION IN THE MOHAWK RIVER

The Mohawk river offers the cheapest and most convenient method of disposal of the sewage, and the plans prepared for the sewerage system contemplate in general the emptying of the sewage into that stream.

It is a well proven fact that a certain amount of crude sewage can be emptied into a running stream daily without perceptibly contaminating the water or causing a nuisance. The ratio necessary between the stream flow and the amount of sewage which can be emptied into it without causing a nuisance is by no means well established. Experienced engineers differ widely in their estimates of its value, possibly because all streams have not the same power of purifying sewage. Swift streams will purify more sewage for a given flow than sluggish ones, and those without dams or ponds less than those with them. The consensus of the opinions of several experienced engineers seems to be that a flow of from four to seven cubic feet per second is necessary in a stream to render the sewage from 1000 persons inoffensive below the mouth of the outlet sewer. In a recent case, tried in the supreme court of this state in Chautauqua county, Justice Spring decided that a flow of six cubic feet per second was necessary to render the sewage from 1000 persons inoffensive in the Chautauqua lake outlet, a crooked stream having several dams upon it. The city of Jamestown, N. Y., was permanently enjoined from using that stream as a sewer outlet because the stream flow was less than the ratio given above.

Owing to the probable future pollution of the Mohawk river above Canajoharie by sewage from Rome, Utica, Frankfort, Herkimer, Ilion, Mohawk, St. Johnsville, Litte Falls and Fort Plain, it is best to use the maximum of seven cubic feet per second as the required flow in the Mohawk river for the treatment of the sewage from 1000 persons in the village of Canajoharie.

The area of the watershed of the Mohawk river above Canajoharie is about 1700 square miles, and taking the absolute minimum flow of the stream in the driest years as one-quarter cubic feet per second per square mile, we have 425 cubic feet per second as the flow of the river at Canajoharie in the driest months of the driest years. On a basis of a population of 5000 persons connected with the Canajoharie sewers at the end of 10 years from the date of their construction, the flow of 425 cubic feet per second would be at the rate of 85 cubic feet per second per 1000 persons using the sewers, or more than 12 times the amount required. During the years of average rainfall the summer flow of the river will be about three times that of dry months of dry years, with a corresponding increase in the dilution of the sewage. Undoubtedly the Mohawk river can safely be used as an outlet for the Canajoharie sewers for many years to come without any danger of polluting the stream to a noticeable degree.

The increasing stringency of the requirements of the health boards of the state prohibiting such pollution show the wisdom of providing for an alternative method of purifying the sewage of the village without emptying it into the river in its crude state. Stream pollution in this state has increased rapidly within the past 10 years, partly because of extensive sewer building in the smaller cities and the villages, and many streams and lakes have become nuisances where formerly they were a source of profit and pleasure to persons living on their banks.

The city of Albany has been compelled to build an extensive filter plant to purify the water of the Hudson river to make it potable, owing to its pollution by sewage from the cities and towns on that river and its branches above Albany. The village of Ballston and mills on the Kayaderosseras creek, the village of Saratoga Springs and residents on Saratoga lake have been ordered by the proper state authorities to cease polluting the stream and lake, and it is probable only a question of a very few years when still more stringent state laws will be enacted prohibiting stream pollution within its borders.

In the case cited above, Justice Spring held that no person or corporation, municipal or other, had any right to pollute any stream or body of water within the state; and the trend of public opinion in this state seems to be strongly against the pollution of its natural watercourses, and that they should be preserved in their natural purity for the profit and pleasure of its citizens.

METHODS OF SEWAGE DISPOSAL

The following are the principal methods used for the purification of sewage in this and other countries:

(1) By dilution, by emptying it into a stream or large body of water.

(2) By chemical precipitation, in which certain chemicals, generally lime and alum, are added to the sewage, causing a precipitation of the suspended matters in the sewage.

(3) By land filtration, in which the sewage is run into specially prepared beds, where a very complete purification of the sewage is effected by minute organisms called bacteria.

(4) By special forms of filter beds, where a very rapid and complete purification of the sewage is effected by the action of

bacteria in the filters, composed of various substances such as coke, burnt clay, gravel and broken stone.

(5) By a septic tank and special filter bed, where the sewage is first run into a dark, unventilated tank called a septic tank, where certain forms of bacteria change the solid matters in the sewage to liquids on special filter beds composed of coke, broken stone or gravel.

In the case of the Canajoharie sewers all of the methods noted above, except the first, would require the pumping of the sewage to such a height that the lowest part of the disposal works would be above the flood level of the river.

Assuming a necessary fall of seven feet through the works, the sewage would have to be raised 20 feet above the grade of the proposed outlet, entailing an annual cost of $1500 for the sewage from 3000 persons. To this should be added the cost of operating the purification works, including interest on their cost and a proper charge for renewals and repairs.

The probable first cost and yearly expense of operation by the various methods requiring pumping, including the cost and operation of the pumping plant, would be as follows:

	First cost	Annual cost
(2) Chemical precipitation	$25,000	$4,000
(3) Land filtration	20,000	3,400
(4) Special forms of filter beds	20,000	3,500
(5) Septic tank, special filter bed	13,000	3,000

In all the above cases the yearly cost would be a heavy tax on a village the size of Canajoharie, and we can properly seek for some means of disposal whose cost of operation will be less than those noted above.

EFFECT OF TREATMENT BY A SEPTIC TANK

In the treatment by chemical precipitation, or by the land or special filters, the heavy matters in the sewage technically known as "sludge" cause the greater part of the annual cost of operation. In the chemical process the quantity of sludge is increased *by the* action of the chemicals, and it has to be pressed before it can be handled. In the filtration methods the sludge clogs the filters, necessitating a larger area of filter and the periodical raking or renewal of the top layers. In the septic-tank treatment the sludge is removed by bacterial action in the tank and a smaller area of filters is required than in the other processes. In the septic tank the solids are changed to liquids, and the effluent from the septic tank is clear.

The following analysis of the effluent from the Sutton, England, septic tank, made by Messrs. Dibdin and Thudichum, shows the reduction of the solid particles in the sewage in the passage through the tank:

24.5 grains per gallon in sewage.
11.3 grains per gallon in the tank effluent.

A portion of the solids having been changed to liquids in passing through the septic tank, the effluent is readily acted upon by those forms of bacteria present in the filters or in running water and its final purification is rapid.

The visible pollution of a stream by sewage is caused by suspended particles of sewage matter which color the water, or becoming stranded on the banks, are offensive to sight or smell. The effluent from a septic tank would cause no visible pollution of a stream into which it flowed, and its final purification would be rapid by dilution and the action of the aerobic or breathing bacteria present in the stream. Solid matter in sewage must first be changed to liquid forms before its final purification can take place, and the septic tank is a breeding-ground for the anaerobic or non-breathing bacteria which effect this change to a liquid form.

METHOD PROPOSED

Purification by dilution during months of large rainfall and septic-tank treatment in months of light rainfall seems to be the method best adapted to the needs of Canajoharie for the following reasons:

(1) No pumping would be required, as the sewage enters and leaves the tank at the level of the outlet sewer.

(2) High water would cause no damage to the tanks, as they contain no filtering material.

(3) Reduced first and yearly cost.

The first cost of the septic tank would be $6578 and the annual charges $500.

As has been shown above, the water in the river, even in the driest months of the driest years, is many times that required for the treatment of the crude sewage from a village the size of Canajoharie, and the septic-tank treatment would remove all of the coarser and most of the finer solids from the sewage, rendering its final treatment by dilution in the stream rapid and preventing all visible pollution.

Taking into consideration the large flow in the Mohawk river, the small population of the village and the heavy first and annual cost of any method requiring the pumping of the sewage, I have no hesitation in recommending the adoption of the plan of treating the sewage of Canajoharie by dilution during months of average river flow, and by passing through a septic tank and subsequent dilution during months of low river flow.

The accompanying drawings show the proposed location of the septic tanks at the foot of the north slope of the embankment of the Erie canal, and the size and position of the tanks, buildings, pump pipes, valves, etc.

FUTURE WORK

Possible future legislation may prohibit the emptying of the effluent from the septic tank into the river without further treatment; in which case the pump shown in the plans can be used, with slight changes in the piping, for raising the effluent from the tanks to a small rapid filter situated above the level of the river floods. In that case the construction of a filter would be postponed until required and the interest on its cost saved during the intervening years.

CANAJOHARIE SEWAGE DISPOSAL WORKS—DESCRIPTION

The works in general consist of two sand pits, each 10 by 20 feet, and two septic tanks, each 20 by 40 feet, built below the level of the outlet sewer, with the outer walls carried up to the level of the tow-path or one foot above the high-water level of the Mohawk river.

The sand pits are covered by a frame house containing a centrifugal pump and a gas or electric motor for pumping out the tanks for cleaning.

The septic tanks are covered by a roof having a scuttle hole for inspection and the operation of the valves on the pump suctions in cleaning the tanks.

The walls are of rubble masonry laid in Portland cement mortar, the portions below the sewer level being faced on the inside with a four-inch wall of hard brick burned until impervious to water and tied into the rubble masonry by headers in every fourth course. The floor of the septic tanks and sand pits is of Portland cement concrete 12 inches thick. The timbers are of the dimensions shown on the plans. All joists, rafters, roof boards, purlins, studding and posts are of hemlock. The house floor, siding casings, doors and shingles are of white pine. The window glass is single thick, set in one and one-quarter-inch sash, hung with weights.

The chimney is of brick, fitted with one six-inch opening for a stovepipe and one four-inch exhaust pipe from the gas motor.

OPERATION

A weir in the manhole on the main outlet sewer diverts the dry weather flow into the 12-inch sewer inlet placed in the wall between the two sand pits. The sewage enters one or both of the sand pits, as the case may be, through the 12-inch valves. The velocity of the sewage being checked, any sand and heavy solids are deposited in the sand pits, the partly clarified sewage passing on into the septic tanks through the 12-inch cast iron overflow pipes. By means of three steel partitions the sewage in its passage through each tank has to flow a distance of about 110 feet to reach the outlet pipe, set in the end wall of each tank. Through this outlet the sewage passes to the river.

When the sand in the sand pits or the sludge in the septic tanks become so deep as to require removal, the pit or tank is emptied by the centrifugal pump and the sand and sewage or sludge is pumped into a portion of the river flats graded to receive it.

By passing through the works the sewage loses nearly all of its heavy solids, and the greater part of the lighter solids are liquified by the anaerobic bacteria which flourish in the dark, unventilated septic tanks. It has been proven that in its passage through a septic tank in which the anaerobic bacteria are active, the sewage separates into three parts or layers—a layer of heavy mud falls to the bottom of the tank, a layer of lighter matter rises to the surface of the sewage and a layer of clear and partly purified sewage lies between the bottom and the top layers. Some of the top layers, when acted on by the bacteria, falls to the bottom and the bottom layer gradually increases in depth. The outlet takes the sewage from the middle layer, leaving the top and bottom ones in the tanks.

When treating the sewage from 1500 persons the deposit in the septic tank will probably accumulate at the rate of one cubic yard each month, or the surface of the deposit will rise one-tenth of an inch per week. The bottom deposit does not represent all of the heavy solids present in the sewage when it enters the septic tank because the bacteria acting on the sewage have changed a portion of the solid parts to liquids, and the deposit is the chemical ash or residue remaining. But little change takes place in the depth of the floating matter in the septic tank after the bacteria have begun to work. The sand pits will probably have to be pumped out every three or four months, as a considerable amount of sand and dirt will enter the sewage through the perforated manhole and flush tank covers and collect in the sand pits.

When the level of the water in the Mohawk river rises above elevation 29 (the grade of the main sewer) the river water will enter the tanks through the outlet sewer and its level in the tanks will rise and fall with the river water. No damage will be caused by the flooding of the works, as the small amount of river mud which will settle in the tanks while they are flooded can be readily pumped out after the water recedes. It is possible to keep the river water out of the tanks by placing valves on the outlets and closing them when the river rises, and strengthening the walls to resist the pressure due to the 13 feet head of water outside of them, but I have not considered that the benefits derived from such a plan would warrant the heavy cost of the additional thickness of the walls. At times of high water in the river it will not be necessary to operate the disposal works, as the increased flow in the river at such times will properly dilute the crude sewage.

ESTIMATE OF COST

I estimate the cost of constructing the works as follows:

1 acre of land	$200
1433 cubic yards excavation, at 30 cents	430
390 cubic yards masonry, at $5	1950
74 cubic yards concrete, at $5	370
18,000 bricks laid, at $15	270
House and tank roof	600
Pipes, valves, overflows	600
Six-inch pump	150
Motor	200
200 feet effluent sewer, at $1	200
Pipe protection to works	500
Preparing filter beds for sludge	500
	$5970
10 per cent added for contingencies and engineering	597
Total	$6567

YEARLY EXPENSES

4 per cent interest on $6567 and depreciation	$394 68
Cleaning tanks	100 00
Total	$494 68

WM. B. LANDRETH
Consulting engineer

SARANAC LAKE, N. Y.

Separate sewer system

At a meeting of this Board on April 27, 1900, plans were approved for various new sewers and for changes in plans for others previously approved by this Board, so as to collect the sewage which has been emptying into Lake Flower, the source of water supply for the village, and carry it into the outlet thereof, the Saranac river, far enough down stream to avoid any present danger.

The plans provide for a disposal plant whenever the same may become necessary. The description of changes and of new sewers follows:

SARANAC LAKE, N. Y., *March* 14, 1900

BAXTER T. SMELZER, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Sir—The undersigned, comprising the board of sewer and water commissioners of the village of Saranac Lake, N. Y., present herewith a description, map, profile and specification, in duplicate, of proposed changes in the general sewer plan of said village under chapter 414 of the laws of 1897, for the approval of your Board.

The proposed changes in plan or grades will allow of the construction of the sewers noted in advance of the building of a general sewer system, and in the case of the Maple street main sewer at a less cost than by the plan approved for sewers in said village on December 14, 1898, by your Board.

The proposed extension of the Dorsey street interceptor will obviate one crossing of the Saranac river, and will place that sewer where it will be accessible at all times for inspection and repairs.

Respectfully submitted,

E. S. McCLELLAN, *President*
W. E. TROMBLEY
W. C. RICE
Board of sewer and water commissioners

SARANAC LAKE, N. Y., SEWERS

Description of sewers referred to in the recommendation of the board of health of the village of Saranac Lake, N. Y., dated September 21, 1899, and in the recommendation of the board of trustees of said village dated September 23, 1899, both of which were transmitted to the State Board of Health on September 29, 1899:

MAIN TRUNK SEWER

Beginning at the intersection of the center lines of Main and River streets in said village; thence easterly through private property about 150 feet to the south bank of the Saranac river; thence along the south bank of said river to the intersection of Broadway and Woodruff streets by the route shown on the accompanying map; thence along Woodruff street to the angle therein near the south bank of the Saranac river; thence across said river and along the north bank thereof to and across Pine street; thence along the north bank of said river to the outlet shown on said map.

The sizes of the main trunk sewer are to be as follows: From Main street to the bank of the Saranac river, 18 inches in diameter; along the south bank of the river and Woodruff street and to the manhole on the north bank of the river just east of Trestle street, 20 inches in diameter; from the above-mentioned manhole to the outlet, 24 inches in diameter.

The elevation and rate of fall of said sewer shall be as shown on the accompanying profile thereof.

NORTH TRUNK SEWER

Beginning at the center of Broadway at the north end of the bridge crossing the Saranac river; thence along the north side of the river by the route shown on the general sewer plan for said village to the manhole on the proposed main trunk sewer just east of Trestle street. The north trunk sewer is to be 18 inches in diameter, and it is to be laid at the rate of fall and grade elevations shown on the general sewer plan of said village, and is also shown on the accompanying profile thereof.

MAPLE STREET SEWER

Beginning at the manhole on the proposed north trunk sewer at the intersection of the center lines of Lake, Maple and Main streets in said village; thence southerly on Maple street to the last angle therein before reaching a street leading east from Maple street, a distance of about 1800 feet, also northerly from said manhole to the river.

The size of the Maple street sewer is to be 10 inches, and the elevation and rate of fall thereof are to be as shown on the accompanying profile thereof.

SEWER ON A PORTION OF BROADWAY AND ON A PORTION OF AMPERSAND AVENUE

Beginning at a point in the present 6-inch sewer on Broadway, 15 feet south of the center of the present flush tank thereon; thence northerly along Broadway 254 feet to the intersections of the center lines of Broadway and Ampersand avenue; thence westerly on Ampersand avenue a distance of 500 feet to the first summit in said avenue west of Elm street.

The sewers on Broadway and Ampersand avenue are to be 6 inches in diameter, and the elevations and rates of fall are to be as shown on the accompanying profile therefor.

SARANAC LAKE, N. Y., SEWERS

Proposed changes in the general sewer plan for the village of Saranac Lake, N. Y., under chapter 414 of the laws of 1897.

GROVE STREET DISTRICT

Run an 8-inch sewer on Grove street from Highland avenue to Columbia avenue flowing towards Columbia avenue; thence Columbia avenue to the first bend therein south of Grove street; thence across private property down the bluff to and across Bloomingdale avenue to the Saranac river, using the river as a temporary outlet.

Change the direction of the sewers on Highland, Park, Grove and Columbia avenue to correspond with the changes proposed in the direction and depth on Grove street.

DORSEY STREET INTERCEPTOR

Carry the Maple street main sewer along the left bank of the Saranac river to the head of the Dorsey street interceptor, entering it at the foot-bridge.

Change the sizes of the Dorsey street interceptor, making them as follows: From the center of Broadway to the foot-bridge, 15 inches; from the foot-bridge to the intersection of Maple and Lake streets, 12 inches in diameter.

Change the grades on the Dorsey street interceptor to correspond to those shown on the accompanying profile thereof.

MAPLE STREET MAIN SEWER

Change the grade of the Maple street main sewer to correspond with the grades shown on the accompanying profile of the Dorsey street interceptor, and use a rate of fall on Maple street of .20 feet per 100 feet on Maple street from Lake street to the foot of the interceptor on the west bank of Lake Flower.

The changed grade elevations will be as follows: Maple street and Lake street, 1457 feet; Maple at foot of interceptor on west bank of Lake Flower, 1460.6 feet. To carry out the idea of keeping the interceptor on the west side of Lake Flower as high as is practicable in order to avoid expensive work below the water level of the lake, the same rate of grade should be used on that interceptor to the third manhole east of Maple street continued. At that manhole a sewage lift should be built to raise the sewage collected from the streets in that vicinity up to the grade of the interceptor, using the sewage itself as power.

SPECIFICATIONS

The specifications accompanying the general sewer plan, a copy of which is hereto attached, shall apply to the proposed changes.

SARANAC LAKE, N. Y.

Description of a sewer to be built in Trestle street, Saranac Lake, N. Y., referred to in the recommendation of the board of health of said village, dated November 8, 1899, and in the recommendation of the board of trustees of said village, and in recommendation of the board of sewer and water commissioners of said village dated November 17, 1899, and presented to the State Board of Health February 1, 1900.

Beginning at the intersection of Trestle street and the Saranac river, thence north on said street a distance of 450 feet to a flush tank. The sewer is to be six inches in diameter and to be laid on the grades shown on the general sewer plan for said village.

FISHKILL LANDING, N. Y.

Separate sewer system

Plans providing for a separate sewer system for the entire village were approved by this Board April 27, 1900.

The sewage from the main system is to be collected by gravity at the foot of Main street, whence it will flow under the waters of the Hudson river 1300 feet to the channel bank.

A small portion of the southerly part of the town will be sewered directly into the Hudson river through the Denning avenue outlet, which is about 4200 feet south of the Main street outlet.

The plans contemplate the possibility of a disposal plant at some future time, to be located at a point on the Main street outlet at the river shore. The engineer's report follows:

SEWERS OF FISHKILL LANDING, N. Y.

ENGINEER'S REPORT, TOGETHER WITH ESTIMATE OF COST, CONTRACT, SPECIFICATIONS, ETC.

To the Honorable President and Board of Trustees of the Village Fishkill Landing, N. Y.:

Gentlemen—I herewith transmit plans and specifications of a sewerage system for your town.

This system contemplates the removal of household sewage and to some extent the subsoil water. It does not provide for nor contemplate the admission of any storm water. Several of your members have expressed their desire that some provision be made for the removal of storm water in certain localities. The localities where the storm water has been found troublesome can be drained more economically by an entirely separate system.

The topographical conditions existing in your town divide it into two general slopes. One toward the west, the Hudson river slope; the other toward the east, toward the Matteawan creek.

However desirable the removal of the storm water may be, still as a menace to health and soil pollution it is not commensurate with the sewage from the household.

Having a limited population and assessed valuation I fully appreciate your determination to practice the most rigid economy. Hence one of the first requisites is to eliminate the idea of an extensive system of storm-water sewers, which seldom need be coextensive with those required for the removal of house sewage.

On the western slope at the present time there is not a pressing need for the removal of the storm water, except possibly on Beekman street and Main street.

A storm-water sewer on Beekman street need not be expensive, and the present outlet near the railroad bridge can be utilized, which would not be the case if the wastes from the household were admitted to the sewer. Main street has a cement sewer of from 12 inches to 20 inches in diameter which is now used as a partial combined sewer.

With a small expenditure for inlets and the elimination of the house sewage, this sewer, while of limited area, could nevertheless be made to do good service.

On the eastern slope, which has a much less rate of inclination, there has been considerable annoyance from storm water.

This storm water, however, can be conducted by several short sewers into what is called the ditch, a small stream tributary to the Matteawan creek, much more economically than enlarging the long trunk line sewer on South Chestnut street, West Center street, Newburgh avenue, River street and Main street oulet sufficiently to carry off the storm water from the extended area.

Again, in case at some future time it became necessary for the river towns to treat the sewage before its admission into the river, it could be done much more economically with the storm water excluded.

Hence from both sanitary and economic conditions it has appeared advisable to limit the plans to a separate system, leaving the storm water for an after consideration.

As to scope, these plans make provision for the entire territory within the limits of the corporation, consisting of approximately 780 acres, except a small area at the extreme north and south.

These sections are open country, with no immediate prospect of becoming transformed into town property. Should they, however, become thickly settled in the future, both are on the western slope, and each will require a separate outlet not conflicting in any way with the present system.

It is not likely that you will desire to construct all the sewers laid out on the plan at the present time.

It is quite essential, however, that the plan and estimate be made for the whole village in order that any part you may elect to construct now or at any future time may be constructed in conformity to lines laid down in a general plan.

Elsewhere you will find a tabulated statement of the sizes, depth and grade of the sewer, with the velocity and discharge for different depths of flow, together with an estimated tributary population which the sewer will amply provide for, still leaving a large margin for safety, ventilation, etc.

We note here that the present population is approximately 5000. This sewer, when running half full, will provide for a population five times as great.

A brief description of the main system is as follows: The outlet is at the foot of Main street, extending 1300 feet to the channel of the river.

At the intersection of Main and River streets the two main branches of the system are brought together.

The northerly or Main street branch provides in general for all the territory north of Main street and west of Cross street, together with a small area on South avenue. The southern or Newburgh avenue branch provides for the remaining territory on the western slope, except the small southern section provided for by Denning avenue outlet.

The Newburgh avenue sewer runs easterly on Newburgh avenue nearly to South avenue; thence along private lands to West Center street; thence easterly on West Center street or its probable extension, cutting through the divide between the eastern and western slopes to South Chestnut street; thence northerly on South Chestnut street to Main street, continuing northerly on North Chestnut street to Church street; thence westerly on Church street to North Cedar street; thence northerly on North Cedar street to Verplanck avenue.

This line after reaching South Chestnut street is entirely to the east of the village and almost exactly follows the corporation line. It will intercept or provide an outlet for every sewer which may become necessary on this slope.

As before stated, these two branches (Main street and Newburgh avenue, with the small southern section having an outlet at the foot of Denning avenue and having tributary only to Hudson, Smith and John streets, with provision also of a part of the south side of Newburgh avenue) will provide for the entire territory within the corporate limits, with the exception of the extreme north and south.

There are already laid sewers on Main street from the river to Cottage place, also sewers (12-inch) on Willow street from Main to Oak street, and the entire length of Cottage place.

The Main street sewer can be utilized as a storm-water sewer exclusively.

The Willow and Cottage place sewers have been incorporated in this system. An automatic flush tank is placed at the north end of Cottage place sewer.

On Willow street the sewer is extended to Verplanck avenue.

You will note on the plans several instances where the sewers have been run through private property; this has been done usually to avoid deep rock cutting.

The necessity for avoiding rock excavation as far as possible is shown under the estimated cost of the work.

You will find attached an estimate of cost for the entire system given in detail.

This will enable you to ascertain with but little trouble the cost of the sewers for any section, street or part thereof.

As heretofore mentioned, this plan provides for carrying the outlet at Main street to the channel of the river, a distance of 1300 feet. The sewer is carried above low water for a distance of 1200 feet; for the last 100 feet, at the end, iron pipe is used in the construction, and the grade is increased that the outfall may be entirely under water. The carrying of the sewer above low water for nearly the entire distance, while more expensive, is the better form of construction.

I do not think it necessary nor advisable at present to go to this expense. If the sewer and embankment should be carried out 400 feet temporarily, it is doubtful whether any nuisance would arise therefrom.

From time to time crib work can be placed and a public dump formed, thus ultimately forming a public dock to the channel of the river as well as providing an outlet for the sewer.

In case this is not deemed advisable, a smaller sized iron pipe can be laid to the channel of the river; in this case an overflow should be provided for, also a gate inserted in this iron main and a four-inch connection made with the water main. By closing this gate and admitting water from the street main this line could at any time be thoroughly flushed.

A 10-inch cast iron pipe will be sufficiently large for a long time to come.

Your attention is now called to the conditions which render the construction of sewers advisable as a public measure for the health of a community and a few of the details to be observed in the plan.

All animal and vegetable matter after the time of its utility has elapsed passes rapidly through decomposition back to the elements again. Nature provides in this putrefacting process innumerable micro-organisms which find therein a suitable habitat, thus hastening this disorganizing procedure.

These micro-organisms, while they perform a great service and in most instances are harmless, nevertheless there may be species of deadly virulence such as the typhoid germ; at no time or in no manner is it advisable to unnecessarily subject ourselves to the influence of this process of putrefaction. It is a safe rule to regard these processes inimical to health and to have the putrefacting matter removed as speedily as possible beyond the range of injurious influence.

When any territory becomes thickly settled the cesspools, water-closets and often wells increase proportionately.

There comes a time when the soil becomes overcharged and cannot oxidize the putrescent matter contained therein.

This condition cannot fail to have a general deleterious effect even if there is no development of specific cases of disease traceable to this cause.

That part of your village near or adjacent to Main street is quite thickly settled. At Verplanck avenue on the north, and beyond Wiltsie avenue on the south, it is sparsely settled.

Reference to one of the sheets of plans will show a large number of wells in the densely settled district; many of them have a depth of from eight to 10 feet only. It is safe to say that the cesspools and water-closets in this same district greatly outnumber the wells. Added to this the elevation of the ground water is high, so much so that cellars are not dug to any considerable depth, and the existing cellars are oftentimes damp if not wet. This large amount of water retained in the soil restricts its capacity for air and oxidizing power.

It is not an uncommon occurrence to observe sewage oozing out of the ground in several localities.

Conditions like these certainly warrant your board in an endeavor to obtain the consent of your taxpayers to eliminate the most objectionable of these features.

As to a few of the details of design: Bear in mind that the first object of a sewer is the removal of wastes from the house to the outfall before putrefaction has set in. To do this certain velocities have to be maintained in the sewer in order that the solid matter may be floated and carried along. Otherwise decomposition takes place in the sewer. It is not always possible to obtain grades which will be self-cleaning at or near the ends of the line.

The few houses usually tributary, near the end of any lateral, do not furnish the sufficient quantity of sewage to give the requisite depth for flotation or a sufficient carrying velocity. Such sewers need to be supplemented with automatic flush tanks which will discharge at least once each day, perferably during the night-time. By the sudden discharge of a large volume of water any substance which may have found lodgment will be removed and the sewers cleansed.

The plans for this system contemplate a velocity of not less than two and one-half feet per second when the sewer is running one-half full.

Such a velocity is greater than necessary for the movement of ordinary sewage of the class contemplated.

Sewers will not run one-half full, and the velocity will be less for less depths. It is not advisable to allow the velocity to fall but little below one foot per second. Also to secure the best results the depth of flow should be at least two-tenths of the diameter of the pipe. While this is to be desired, it cannot always be obtained. This is especially true of the steep grades of some of the streets.

As before stated automatic flush tanks have been located at the ends of all those laterals which require at least daily flushing.

As a matter of economy on other lines where the grades are sufficiently great the automatic flush tank has been omitted and a manhole or flush tank substituted. At these places occasional flushing should be resorted to.

To secure thorough ventilation the sewer should be so designed that the flow will not exceed one-half the diameter in depth;

also where a change in size of sewer occurs the crown of a smaller shall be as high as that of a larger sewer. Both of these requirements have been complied with.

To lower the level of the ground water and relieve the congested condition of the soil, drain-tile has been added in some localities. While it is possible to dispose of the ground water elsewhere, nevertheless until the population largely increases or it becomes necessary to treat the sewage it is desirable to admit it into the sewer.

The quantity of ground water cannot be ascertained with any satisfactory degree of accuracy in advance of the sewer construction. It is therefore not introduced into the tabulation of discharge. It will probably be not in excess of 20 per cent of the capacity of the sewers where laid. Such an amount for a long time to come probably will be beneficial rather than otherwise.

It is not advisable to utilize the city water in any way except for the necessary flushing of the laterals.

The sewer line on private property extending from South Elm street to South Chestnut street, while adding some to the expense, is located with reference to the probable extension of DeWitt street. This line contemplates cutting through the impervious barrier, partially rock, from South Cedar to South Chestnut street, and affording a drain for this underground basin between South Cedar and South Elm street.

In compiling the tabulated statement attached there has been allowed an estimated population of 100 to the acre for the undeveloped territory. This probably is large. For all streets open or proposed approximately 25 inhabitants to each 100 feet has been allowed.

This may be low for some localities, but as an average it is probably sufficiently large. One hundred gallons per diem per capita has been allowed for discharge.

The tabulated statement gives the street, station, length, size, depth, fall per 100 feet, fall per foot, estimated population based upon 100 per acre for undeveloped land, and 25 for 100 feet of sewer extension, allowing 100 gallons per diem per capita; also the capacity of the sewer, giving the quantity in gallons discharged in 24 hours when running full and for the depths of .5 .4 .3, .2 and .1, in terms of diameter; also the velocity in feet per second under the same conditions.

As an illustration of using this tabulated statement, suppose you desire information as to the sewers on River street at its junction with Main street; turning to River street you find the sewer to be 18 inches in diameter, 10 feet deep, having a fall of one foot in 200 or a 5 per cent grade, that the estimated population tributary is 16,685, and the sewage discharge for that population is 1668—500 gallons in 24 hours, which gives slightly over .4 depth of flow, equivalent to a depth of nearly 7¼ inches—and a velocity of about 3.6 feet per second is secured. Again, on South Chestnut street at the outlet of the sewer line to South Elm street we note the sewer to be 18 inches, having a depth of 14 feet, a fall of one foot in 500, equivalent to 2 per cent grade; that the estimated population is 9054; that sewage discharge for 24 hours is 905,400 gallons, depth of flow slightly over .4 diameter (approximately 7¼ inches) and a velocity of 2.27 feet per second. These conditions are satisfactory.

The above is for an estimated population of approximately 9000. Consider briefly the present conditions: We note the present population is approximately 5000, about equally divided on the western and eastern slopes. Again we note that with intelligent management and the assistance of the flushing appliances the laterals can be kept free from deposits. Again we note that the grades of the mains on the western slope are sufficient to insure their working properly. There remains then only a few of the mains on the eastern slope for consideration.

Again take the point last under consideration on South Chestnut street at the junction of the line from South Elm street, noting as before the size to be 18 inches with a fall of 1 in 500. We also note that with a depth of flow of .1 diameter (slightly over 1¾ inches) the quantity of sewage discharged in 24 hours would be 88,561 gallons and the velocity would be .93 feet per second. This velocity will undoubtedly remove any of the components of ordinary house sewage. Such a depth of flow and velocity, however, should be considered the minimum allowable.

There is at this point a tributary population of approximately 2000—ample to supply the amount required. Again, take Church street at North Chestnut street; the size of the sewer is 15 inches fall, 1 in 400, for a depth of flow of .1 diameter (1½ inches). The sewage discharged in 24 hours would be 59,975 gallons and a velocity of .908 feet per second secured; this also is the minimum allowable. The population tributary is probably not in excess of 700. At this point the confluence of several laterals is not far distant. The sewage discharge will vary considerably at different hours of the day.

This population will probably furnish the requisite amount of sewage to prevent deposits.

Again on North Cedar street, between Oak street and Verplanck avenue, here the sewer is 12 inches in diameter and has a fall of 1 in 290 feet; a depth of flow of .1 diameter (nearly 1¼ inches). The sewage discharge for 24 hours will be 38,137 gallons, and a velocity of .901 feet per second will be secured. This also is the minimum allowable. There is tributary but a small population, not sufficient to keep the sewer clean.

This will require careful watching. An extra manhole has been placed in this line, between Oak street and Verplanck avenue, to facilitate inspection and cleaning. There is a flush tank on Verplanck avenue, but the effectiveness of the flush will not be great on North Cedar street.

As stated before, the ground water has not been taken into consideration as a factor for increasing the flow. That it will have considerable effect is beyond question.

After the completion of the sewer on North Cedar street and the admission of the ground water, if there is still manifested a tendency toward deposit an occasional cleaning will be required, or it is not likely that the requisite amount of water to sufficiently increase the flow can be obtained from nearby sources at slight cost.

Respectfully submitted.

PORT CHESTER, N. Y.

Extension of existing sewer system

Plans providing for the extension of the existing sewer system and covering what is known as the "Irving avenue district" were approved by this Board April 27, 1900.

The plans contemplate the collection of the sewage of this district by gravity at the old manhole at Board and King streets, and thence discharging through the existing mains directly into Byram river.

DEPEW, N. Y.

Sewage disposal works and changes in system

Plans providing for the purification of the sewage were approved by this Board July 10, 1900, and plans providing for changes and extensions of the existing separate system were also approved September 20, 1900.

The report on the sewage disposal work made to this Board by the designers thereof—the City wastes disposal company—is believed to contain so much of useful information and interest to other localities similarly situated that it is desirable to quote from it here the following.

* * * "Depew is sewered on the separate system. The sewage will consist almost entirely of wastes of a domestic character; for although much of it will come from factories and shops, the manufacturing is of such a nature that no considerable amount of liquid 'trade refuse' is produced. The volume for some time to come will not exceed 180,000 gallons per day. The plant proposed will treat 250,000 gallons per day.

"The disposal works are to be located on a farm and grist-mill property lying on Cayuga creek on the south side of Borden road, where the main sewer now terminates. The effluent is to flow into the creek below the mill dam. The water of the creek is not used as a source of domestic supply at any point below the proposed outlet.

"Circumstances make it necessary that the plant occupy the least possible area; that it be low in first cost, and that its operating expenses be but nominal. To meet these imposed conditions, we have designed along the lines indicated in preference to using any other accepted system of treatment.

"It is obvious that complete purification—to a drinking water standard—is unnecessary for the present at least, and there is no reason why the community should be burdened with the expense of producing such an effluent. By the devices submitted, all the suspended solids of the sewage will be withheld and destroyed, and the effluent will be clear, colorless, odorless and not in the least prejudicial to fish life. Nitrification, while not complete, will be well begun, and the escaping water will contain a large amount of dissolved oxygen—sufficient to make impossible any reversion to putrefaction, even although stored undiluted.

"Briefly stated, the design and operation of the plant are as follows:

"The solids are withheld and liquified in a septic tank of a size which will hold between nine and 10 hours' average flow when the total daily discharge is 250,000 gallons. This period of detention will afford ample time for the separation of the solids and for the 'staling' of the liquor. Prolonged storage tends to make the putrefactive action so marked that the effluent becomes offensive and the oxidation of the organic matter more difficult.

"Dr. Sims Woodhead, F. R. S. E., in his report to the sewage commission of Baltimore, states that the effluent to the oxidizing filters 'must only have been subjected to the anaerobic process for a sufficient period to insure the breaking up of the organic material into ammonia, as it appears that if the anaerobic process be prolonged beyond that point, increasing quantities of substances which have a deleterious action on the micro-organisms, both in the anaerobic tank itself and on the aerobic organisms in the filter, are formed. The anaerobic changes, usually spoken of as 'putrefactive' require to be very carefully controlled, and it has been evident to me throughout that this anaerobic phase is often carried too far, with the result that the aerobic nitrifying changes are greatly delayed in the subsequent treatment of the sewage.' The writer's experience fully confirms this view.

"The overflow from the septic tank is collected by a carrier of construction peculiarly adapted to minimize velocity and to avoid the escape of comminuted solids.

"The bacterial change in this tank being anaerobic and putrefactive in its nature, its effluent, of course, is impure and devoid of oxygen. Unless it can be discharged immediately into a large stream whose contamination is allowable, further treatment is necessary. The putrefactive drift must be stopped and offensive tendencies eliminated; and oxidizing processes of aerobic purification must be inaugurated. This change can be effected only by thorough aeration.

"The simplest way to accomplish this is by applying the septic tank effluent intermittently to beds of natural soil of suitable porosity and well drained; but in practice this is often found unsatisfactory and sometimes, as in the present case, impracticable. It is a process which requires careful and judicious control, and which, in spite of the best of supervision, is sometimes objectionable even when used for the treatment of fresh sewage. The period between the subsidence of the applied liquid and the drying of the surface scum and slime is often trying; and when wet weather prolongs this period for a day or more, some offensive odor is almost sure to result. A marked instance of this kind has for some time been under the writer's eye at Summit, N. J. The danger of annoyance is much greater when the applied liquid is already putrid, or is under the influence of putrefactive agencies, as is the effluent from a septic tank.

"We have found that the aerating processes are usually more easily controlled and the desired results more surely accomplished by the treatment of the liquid in a medium of great porosity, artifically prepared, automatically controlled, and not influenced to any considerable extent by meteorological variations.

"We accomplish the aeration of the effluent from the septic tank at Depew by passing it first through aerated coke filter beds, and then discharging it intermittently in waves through channels laid on a steep grade and filled with broken stone.

"Four of the coke beds are provided. Of these, three will be in commission at once, used in rotation, the fourth resting and held in reserve. The sequence of the active beds is to be changed weekly, so that each bed in turn will lie idle for one week in four. These filters are fed by gravity. The effluent from the septic tank flows into one until the bed is filled to within three inches of its 'full' line. Then the main flow is automatically diverted to the next bed, though a by-pass allows a small stream to enter the first bed, sufficient to fill the remaining three inches in 20 minutes. When the 'full' line is reached, the entire contents are discharged by an automatic siphon and delivered to the 'wave channel' described below. As the liquid in the coke filter subsides fresh air enters the pores, the impurities lodged within the bed are purified, the bed is sweetened, the aerobic bacteria are stimulated, and the bed is prepared to receive its next dose of septic effluent. Each bed thus receives sewage for one hour, stands full for 20 minutes, holding the sewage subject to the attacks of the purifying organisms, and remains empty, save for fresh air, for one hour and forty minutes.

"So far as materials and methods of purification are concerned, these coke beds are the same as the Dibden 'contact filters,' largely used in England, and recommended by the Connecticut state sewerage commission in a special circular letter of advice issued December, 1899. They differ from the English filters solely in improved methods of control.

"The lower filter beds, or 'wave channels,' are inclined surfaces, each 12 by 60 feet, each bounded on the upper side by a brick retaining wall and on the lower side by an earth embankment paved with stone, 18 inches deep at the upper end and 12 inches deep at the lower end. At the upper end of the bed the channel is paved with brick, and the stone is banked up over the lower edge of this pavement in such a way as to form a 'head-bay' into which the siphon discharges the contents of the coke bed.

"The operation of the channel is very simple. The siphon is proportioned to discharge the contents of the coke bed somewhat more rapidly than the broken stone can receive it, thus building up a pressure head in the head-bay whereby the upper end of the stone bed is charged to its full depth. Thus a wave of sewage is started at the head of the channel through a body of porous material, and traverses the channel throughout its length (60 feet), declining somewhat in vertical amplitude as it progresses. The effective result is that the sewage passes through '60 feet of filtering material, being divided, subdivided and redivided by the porous material through which it flows, so that every drop of it comes into intimate contact with well aerated surfaces; and that every vertical transverse section of the bed is subjected to an intermittent rise and fall of sewage, thus providing frequent aeration alternating with frequent application—an ideal condition. Although the effective depth of the bed is 60 feet, no particle of the filtering material is more than 18 inches distant from free air. Aeration is therefore thorough and rapid. The passage of all the waves being similar in time and character, the bacterial colonies are accurately self-stratified—a condition which the experiments of Scott Moncrief and Colonel Waring have shown to be of great importance.

"The actual chemical change which takes place in the sewage while passing through these aerating channels, though marked, is not of so much importance as is the charging of the effluent with oxygen, practically to the point of saturation.

"The coke in the coke beds and the stone in the channels will be a few inches deeper than the maximum depth of sewage. This affords protection from light, which is deterimental to bacterial growth; it tends to conserve the heat and to preserve a more uniform temperature, and it keeps the sewage practically out of sight until it escapes in the effluent outfall, a finished product. In the winter the head-bays are covered with light wooden covers, and the coke and stone filters are bedded with marsh hay, or similar material, to be raked off in the spring.

"The following analyses, taken from records of tests made last year, show the best *and the worst* results obtained under the use of this system, and indicate fairly its average performance:

	Free ammonia	Albuminoid ammonia	Oxygen consumed	Per cent purification
Sewage	3.6	.5	4.85	
Effluent	.5	.085	1.895	85.3
Sewage	2.0	.17	1.69	
Effluent	.25	.125	.696	77.2
Sewage	3.7	.25	5.3	
Effluent	.65	.08	3.1	80.4
Sewage	3.0	.27	5.81	
Effluent	.023	.025	.52	96.7
Sewage	3.25	.23	5.42	
Effluent	.47	.095	2.15	81.6

"Indeed these results are rather worse than they should be, because the regular operation of the plant was interrupted at times for experimental purposes—the dose being suddenly increased or diminished, etc.

"The system has been approved by the New Jersey state sewerage commission for use at Collingwood, N. J., and by the Ohio state board of health for installation at Kenton, Ohio.

"Respectfully,

"CITY WASTES DISPOSAL COMPANY"

HAVERSTRAW, N. Y.

Separate sewer system

Plans providing for a complete sewer system for the village were approved by this Board July 10, 1900. These plans are to take the place of those adopted by this Board July 27, 1893.

PLATTSBURG, N. Y.

Changes and extension of existing sewer system

Plans providing for slight changes in the existing sewer system and for various extensions aggregating 10,435 lineal feet of new sewers were approved by this Board July 10, 1900.

These discharge into Lake Champlain direct and no disposal works are contemplated at present.

WHITE PLAINS, N. Y.

Storm water sewer

Plans providing for a storm-water sewer through and along Davis brook from the New York post-road to the west side of Bronx street, a distance of about 4000 feet, were approved by this Board July 10, 1900. From the end of this sewer, which constitutes a change in the plans heretofore approved, the collected storm water will flow through Davis brook about 350 feet to its junction with the Bronx river.

BATH, N. Y.

Jail sewer

Plans for an 8-inch vitrified pipe sewer from the Steuben county jail to the Cohocton river, a distance of 1695 feet, were approved by this Board September 20, 1900.

COOPERSTOWN, N. Y.

Delaware street sewer

Plans providing for the sewering of Delaware street were approved by this Board September 20, 1900.

There is no general sewer system in this village. This plan is for a separate sewer about 2450 feet long which will discharge directly into the Susquehanna river.

PERRY, N. Y.

Separate sewer system

Plans providing for a separate sewer system were approved by this Board September 20, 1900.

The village lies along the shore and both sides of the outlet of Silver lake, which flows through a steep, narrow and deep ravine for about five miles to its junction with the Genesee river about four miles above Mount Morris.

The contour of the village makes it necessary to discharge the sewage of the two portions divided by the outlet, by gravity, separately. Both of the sewer outlets are below the series of dams on the lake outlet.

Disposal works are to be provided at each outlet at such time as their installation may become necessary. The report of the engineer follows:

ROME, N. Y., *September* 10, 1900

The President and Board of Trustees, Perry, N. Y.:

Gentlemen—We herewith submit plans and specifications for a complete system of sewerage for the village of Perry.

The plans consist of a general map of the entire village on a scale of 250 feet to the inch, profiles of all of the streets, and two sheets of details. The general map shows all of the streets of the village with contour lines referred to a point 200 feet below the top of the rail of the Silver lake railroad at the depot, all sewers with their sizes, direction of flow of sewage, grades, manholes, lampholes and flush tanks. The elevation of the sewer invert is shown at all important points and changes of grades. The two points of disposal of the sewage are shown and marked "A" and "B". The profiles show all of the streets of the village with the ground line and depth of the sewer invert, and all sewers with their sizes, rates of grade, and the location of manholes, lampholes, flush tanks, etc. The elevation of the sewer invert is shown at least at every point of change of grade. The detail plans show all the constructions required to be detailed, such as manholes, lampholes, etc., not clearly described by the specifications. The specifications describe and detail the requirements, condition and method of construction of the entire system.

A quantity sheet also accompanies the plans, giving estimated quantities of work and material required on the construction of the entire system in accordance with the specifications.

The following report gives the data upon which the system was designed and reasons therefor:

REPORT

The village of Perry is situated on Silver lake and along both sides of the outlet of the latter. The village as incorporated covers about two and one-half square miles, and has an estimated population of nearly 3000 people. The national census of 1880 gave it a population of 1115, and that of 1890 a population of 1528. We are informed that a canvass taken some three years ago of the population gave about 2300, and that since that time the village has had a steady and prosperous growth. The principal manufacturing industries are a file works and a knitting mill, employing nearly 1000 hands. The summer population is somewhat increased due to that portion of the village lying on Silver lake being used to a certain extent as a summer resort and frequented by non-residents.

The village has a water-works system first put into service in the winter of 1896, and the consumption of water is variously estimated at from 400,000 to 500,000 gallons daily as a maximum for all purposes. The water supply is taken from Silver lake and is pumped from a pumping station situated at the foot of the lake road to a standpipe on the lake road hill and thence piped to the consumers. The water from the municipal works is apparently excellent in quality and is generally used for all domestic and other purposes.

Silver lake has a water surface of about two square miles and a tributary drainage area, as taken from the county map, of from 20 to 25 square miles. Its elevation referred to our datum was in June, 1900, 189.7 feet. The outlet of the lake passes through the center of the village of Perry in a ravine which is very narrow and constantly deepening as one proceeds northeasterly to where the outlet passes out of the corporation limits. There are six mill dams on the outlet within the corporation, furnishing a considerable water-power, the average head or fall at each dam being about 20 feet. The mill owners' association have an agreement with the owner of the first or upper water privilege by which he turns into the outlet a certain quantity of water which, from the best information obtainable, varies from 900 to 1100 cubic feet per minute, at certain seasons of the year this quantity being materially increased. The upper privilege controls the level of the lake, using it for pondage. It was principally on account of the above-mentioned dams that it was deemed desirable to empty all sewage below the lower dam.

There are two points of disposal of sewage planned and marked "A" and "B" on the village map. Below the upper one of these "B" the lake outlet channel is narrow, well confined and with a heavy gradient and continues so for miles, or practically to the junction of the outlet with the Genesee river four miles above Mount Morris—Perry being about nine miles from Mount Morris as the outlet and river wind. In addition to the channel being suitable for the disposal of untreated sewage the ravine is very narrow, with banks generally steeper than one horizontal to two vertical and for a great deal of the distance to the Genesee river nearly if not quite 100 feet high and overgrown with trees and brush. There are scarcely one dozen houses between Perry and the river within 1000 feet of the outlet, most of them being at or near the nearly abandoned settlement of Gibsonville in Livingston county, where once was a developed water-power of some 50 or more feet head. Nowhere, so far as could be learned, is either the outlet or the river below the confluence used for potable purposes.

On account of the great depth of the ravine it would be impracticable except at large expense to unite the two points of disposal into one, even if the conditions required it. The amount of sewage that will ever be disposed of at point " B " will be small, as a special effort has been made to design the system so that as much as possible of the sewage of the village will be emptied at the point "A".

Considering that, after a few years' use of the system the amount of sewage will practically equal the water consumed, and that the population tributary to the sewerage system will eventually increase so that it would be necessary to provide for the carrying of twice the estimated maximum consumption of water as the maximum rate of flow of sewage. The sewer main on Water street has been designed to carry below Hope street this maximum rate of flow of sewage when running one-half full, and this is the capacity of that portion of the line having the least capacity. A considerable quantity of 6-inch pipe is contemplated in the system.

It is only used where extensions are hardly possible and the amount of sewage is and always will be small. Experience has convinced us that when laid with care stoppages occur with very little more if any frequency in 6-inch than in 8-inch pipe. Practically one-half of the system is designed for the use of 8-inch pipe. The table below gives the minimum and maximum capacities in gallons for 24 hours and grades in per cent for the various sizes of pipe contemplated, and also states where the minimum capacity occurs. For the intermediate grades it may be stated that doubling the grade increases the carrying capacity approximately 50 per cent.

Size	Minimum grade	Occurs on—	Approximate capacity	Maximum grade	Approximate capacity
6-inch ...	0.4	Stanton avenue......	240,000	10.0	1,700,000
8-inch ...	0.35	Main street...........	540,000	10.5	3,600,000
10-inch ...	0.333	Watkins avenue......	900,000	6.5	4,800,000
12-inch ...	0.28	Euclid avenue outlet.	1,290,000	1.0	2,600,000
15-inch ...	0.2	Water street.........	2,000,000	0.2	2,000,000

While for 10, 12 and 15 inch sewers an attempt was made to conform in capacity to the estimated requirements, the 6 and 8 inch sewers are generally much larger than a theoretical estimate of the size required to carry the sewage would make necessary, but a further reduction in their size below 6 inches in diameter would render them too small for successful and practicable operation.

For the rates of grade as designed the minimum velocity of the sewage when the sewers are running one-third full will be from 2¼ to 2½ feet per second.

The use of 36 flush tanks is contemplated for the system. They empty automatically and are for the special purpose of flushing the smaller sizes of pipe. The admission of roof water into the sewers is not contemplated, but might be allowed in a few places for flushing the upper ends of the system where there are no flush tanks planned or conected until such time as the use of those sewers would render unnecessary the admission of such roof water. Any permit to connect a roof with the system should contain a clause giving the village the right at any future time to require the connection to be severed. The admission of roof water might be especially desirable for a time at the few dead ends of the system, or ends having no manholes, lampholes or flush tanks.

There are four separate sheets of profiles. Profile 1 covers all that portion of the village north of Lake street and northwest of the outlet of Silver lake. Profile 2 covers that part of the village south of Lake, east of Federal and west of Walnut streets. Profile 3 covers only Walnut and Handley streets and their outlets. Profile 4 covers the remainder of the village, or that portion west of Federal and Needham streets.

From an inspection of the general village map it is evident that the system as designed covers all of the streets of the village with the exception of such outlying ends near the corporation limits as on Handley street, Main street, near the Peoria road, the Peoria road, Lake street, Camp road, Dewey place and Church street. In regard to Handley street, the territory not cared for is entirely farming country without any house whatsoever. In regard to Main street, near the Peoria road, there is one house at or near the corporation limits. In regard to the Peoria road, there is only one house that is at a point two rods inside of the corporation line. In regard to Lake street, there are only two houses unprovided for. In regard to the Camp road, there are no houses whatever on that part unprovided for, it being all farming land. Dewey place beyond where the sewer line is shown is not built upon, and we understand that it has not yet been dedicated to the public.

The probable future outlet for the north end of Dewey place will probably be across private property to Olin avenue. In regard to Church street, it may be stated that the sewers on Leicester and Main streets provide for all the properties. An inspection of the profile will clearly show the impracticablity of extending the sewers much, if any, beyond the points laid out upon the general map.

A survey was made from Gardeau street along the outlet of Silver lake to the north end of Walnut street with the idea that it might furnish a probable and desirable outlet for Gardeau street and Borden avenue and the Main street outlet, but a study of the matter showed conclusively that the more economical outlet would be down Water street. Further, the carrying of the Gardeau street and Main street outlet sewage down Water street limits the sewage of the Handley and Walnut streets outlets to be a very small amount.

A survey was also made down the ravine between Covington and Hawthorne streets, from Watkins avenue to Leicester street, with the idea of carrying the Watkins avenue and Grove street sewage into the Leicester street outlet, but the estimated cost of this line, with a very low estimate for right of way, was found to be greater than the cost of the increased depths of trenches necessary to carry the Watkins avenue and Grove street sewage through to Hawthorne street and thence down Hawthorne street to Leicester street.

On the south side of the outlet of Silver lake and on the north side of Borden avenue there is a cellar which it is impracticable to provide drainage for by the Borden avenue line. On the east side of Center street, between Lake and Covington streets, there are houses the cellars of which are over 15 feet lower than the surface of Center street, and hence cannot be drained to the Center street sewer. This can readily be drained to the rear. On the south side of Water street there are also houses which are very low and which can obtain cellar drainage readily to the rear or outlet of Silver lake. The same condition obtains for a few houses on the north side of Needham street as on Water street. On the west side of Euclid avenue and Walker avenue there are also a few houses which could not be served with cellar drainage with the system as designed if they had cellars. These houses so far as we learned had no cellars. We believe the above instances cover all cases where cellar drainage is not provided for, as elevations of deep cellars were taken and the system designed so that they could be provided for as on Gardeau street, between Borden avenue and Handley street, and between Handley street and the end of Borden avenue outlet, on Hawthone street, between Grove and Leicester streets, etc.

Respectfully submitted,

KNIGHT & HOPKINS

Engineers

VILLAGE OF NORTHSIDE, TOWN OF WATERFORD, N. Y.

Combined sewer system

Plans providing for the sewerage of a portion of the town of Waterford, known as Northside, were approved by this Board September 20, 1900.

The system provides for the collection and discharge by gravity of all sewage and most of the storm water into the Mohawk river without disposal works. The engineer's report follows:

TROY, N. Y., *June* 30, 1900

Committee Northside Residents:

Gentlemen—In accordance with your instructions I have made an examination and designed a system of sewers for that portion of Northside in the town of Waterford, Saratoga county, N. Y., desired to be sewered, and herewith submit the following:

(1) A plan for the sewerage for that portion of the town of Waterford included within the outside lines of accompanying map, showing the alignment and sizes of the sewers, the location of manholes, catch-basins, outlets, etc.

(2) A set of profiles of the different streets, with the grades of the street elevations and depths of the sewers, manholes, etc.

(3) A set of specifications for the construction of the system.

(4) An estimate of cost of the system.

The territory to be sewered lies on the north bank of the Mohawk river directly opposite Cohoes; its residents are largely operatives in the neighboring mills. The area contains 45 acres, with a natural fall to the southeast. The general plan of the design is the location of an intercepting sewer on the easterly side, which sewer at its south end discharges into the Mohawk river; lateral sewers extend westerly and northerly along the existing streets. The entire drainage area is composed of shale rock, the non-absorbent qualities of which causes the water to remain upon the surface. During times of heavy rains the streets and cellars of many of the houses are flooded. There enters into this problem not only the removal of the sewage proper but also a certain amount of surface water.

In the consideration of the drainage of towns and cities one of two systems is usually employed. These systems are distinguished as the separate system and the combined system.

The separate system deals entirely with the removal of the sewage proper in separate mains, while the surface water is removed to natural channels by gutters or pipes.

The combined system is designed to admit into its channels or conduits not only sewage, but surface water as well.

It is at once obvious that the sizes of the pipes or conduits in the separate mains are smaller. In cost of construction the separate system is the least expensive, and under certain conditions and in smaller towns preferable.

The association of the essential features of both the separate and combined systems seems to be best adapted to this case. The sewers submitted have been designed to remove all the sewage of the district and to admit sufficient surface water in case of storms as to do away with the collection of large amounts of water in the streets. It has been found expedient to adopt for the minimum size 8-inch pipe, although a smaller size would satisfy the computations. Flush tanks have not been recommended because all sewers have ample grades, and near the head of each lateral sewer there are fire hydrants which will readily permit flushing. Catch-basins have been located where they will drain the streets most thoroughly and remove the stagnant waters from the gutters, which, at present, are such a menace to health. The sewer in Charles and Second streets need not at present be constructed only as far as Second street. When Second street, however, is opened, it is designed to extend through that street. The River street sewer is so designed that it can be extended if the future warrants it. That part of the system, the construction of which should be begun at once, includes the Railroad avenue sewer from Grace street to the Mohawk river, the River street sewer from Railroad avenue westerly to the bend, and the Clifton street, Grove and Grace street sewers. The Railroad avenue sewer should be constructed its full length as soon as possible.

The outlet to the system is at a point about 36 feet above the low water of the Mohawk river. I submit two plans which, though similar in principle, differ in construction.

Plan "A" is a discharge well, built of stone and brick masonry, with an outlet pipe extending from the base to low water.

Plan "B" consists of a 24-inch iron pipe, its base built in and protected by stone masonry with an extension from the base to low water, the pipe to be firmly secured by iron straps anchored to the rock.

All of which is respectfully submitted.

GARNETT C. BALTIMORE

Civil

s manholes, lamp-
tions. The speci-
ents, condition and

plans, giving the esti-
quired on the construc-
ith the specifications.
pon which the system was

ed south of the Mohawk river
Its boundary on the east is
ncorporated covers about one
ated population of nearly 2000
1880 gives a population of 1370,
principal industries are knitting,
suburb of Utica the village is likely
and prosperity.
works system completed about a year

the village corporation lies along the
of way of the N. Y. C. & H. R. R. R. The
o south close to the western end of the vil-
e to the east a winding course but
n the norther ion line, so that oppo-
he center of e river at its nearest
quarter of a f the corporation.
of profiles o which extends east and
ength of the aken in connection with
the water Mohawk river, will show
bility of car age by gravity from either
street to t e have hence designed the
single o hawk river at the point men-
about o mile from the northerly line
corpo sirability of uniting the flow of

WHITESBORO, N. Y.

Separate sewer system

Plans for a separate system and disposal works were approved by this Board November 14, 1900.

The plans provide for the collection of the sewage by gravity at one point on the southerly side of the N. Y. C. & H. R. R. R. tracks near the center of the village from whence it will flow through a 20-inch pipe 1340 feet to its final outlet in the Mohawk river. The disposal works are located about midway of the last-named distance, but as in the case of numerous other places in the Mohawk valley, it is not deemed necessary to do more than plan for such works at present, leaving their construction until such times as they may be rendered more imperatively necessary. The system is designed to carry part of the roof or storm drainage of Main street. The engineer's report follows:

ROME, N. Y., *October* 20, 1900

The President and Board of Trustees, Whitesboro, N. Y.:

Gentlemen—We herewith submit plans and specifications for a complete system of sewerage for the village of Whitesboro.

The plans consist of a general map of the entire village on a scale of 200 feet to the inch, profiles of all the streets, and a sheet of details. The general map shows all the streets of the village with contour lines referred to tide-water, all sewers with their sizes, direction of flow of sewage, grades, manholes, lampholes, flush tanks and catch-basins. The elevation of the sewer invert is shown at all important points and changes of grade. The profiles show all the streets of the village with the ground line and depth of the sewer invert, and all sewers with their sizes, rates of grade and the location of manholes, lampholes, flush tanks, etc. The elevation of the sewer invert is shown at least at every point of change of grade. The detail plans show all the constructions required to be detailed, such as manholes, lampholes, etc., not clearly described by the specifications. The specifications describe and detail the requirements, condition and method of construction of the entire system.

A quantity sheet also accompanies the plans, giving the estimated quantities of work and material required on the construction of the entire system in accordance with the specifications.

The following report gives the data upon which the system was designed and the reasons therefor:

REPORT

The village of Whitesboro is situated south of the Mohawk river and on both sides of the Erie canal. Its boundary on the east is Sauquoit creek. The village as incorporated covers about one square mile, and has an estimated population of nearly 2000 people. The national census of 1880 gives a population of 1370, and that of 1890, 1663. The principal industries are knitting, furniture and lumber. As a suburb of Utica the village is likely to have a continued growth and prosperity.

The village has a water-works system completed about a year ago.

The northerly line of the village corporation lies along the north side of the right of way of the N. Y. C. & H. R. R. R. The Mohawk river bends in south close to the western end of the village, and on its course to the east flows by a winding course but generally away from the northerly corporation line, so that opposite a point near the center of the village the river at its nearest point is about one-quarter of a mile north of the corporation.

An inspection of profiles of Main street, which extends east and west the entire length of the corporation, taken in connection with the elevation of the water surface of the Mohawk river, will show the impracticability of carrying the sewage by gravity from either end of Main street to the other. We have hence designed the system with a single outlet in the Mohawk river at the point mentioned above about one-quarter of a mile from the northerly line of the village corporation. The desirability of uniting the flow of sewage into one outlet for the purpose of increasing the flow in the sewer mains, and also for the future collection of sewage at one point for the possible treatment is self-evident. We have hence planned the system so that by means of an intercepting sewer along the southerly line of the N. Y. C. & H. R. R. R. all the sewage is brought to a point about midway between Pleasant street and Dewey avenue and there emptied into the main sewer, 20 inches in diameter, and carried through it to the Mohawk river past the proposed location for future treatment works should treatment of the sewage be later required by the state. The system as planned is not intended for the carriage of surface water except upon portions of Main street. That part of the village lying to the south of the Erie canal is readily cared for by the topography of the land for direct or nearly direct carriage into the Erie canal. This portion of the village has already a nearly complete system of surface drainage by means of the street gutters and some storm sewers. These sewers, together with those that exist in other portions of the village, are shown upon the general map as closely as their localities could be obtained. That part of Main street, between Dewey avenue and Gardner street, is at present largely uncared for by storm sewers or good street drainage, and at seasons of the year much inconvenience is suffered by reason of no means of ridding the street of the water formed by rains and melting snow; consequently we have considered it best to so design the system as to carry away a reasonable amount of this surface water and have planned the system for the construction and use of 17 catch-basins along Main street. Main street for the major portion of the distance covered by these catch-basins is a summit street and hence the amount of water coming to these catch-basins would not be much and should be kept to a minimum as much as possible by proper drainage of the streets running north and south from Main street. It is recommended and expected that this be done, and also that the existing storm sewers be put and kept in a proper working condition.

A considerable quantity of 6-inch pipe is contemplated in the system. It is only used where extensions are hardly possible and the amount of sewage is and always will be small. Experience has convinced us that when laid with care stoppages occur with very little more, if any, frequency in 6-inch than in 8-inch pipe. The table below gives the minimum capacities in gallons for 24 hours and grades in per cent for the various sizes of pipe contemplated, and also states where the minimum capacity occurs. For intermediate grades it may be stated that doubling the grade increases the carrying capacity approximately 50 per cent.

SIZE	Minimum grade	Occurs on—	Approximate capacity
6-inch	0.4	West Main street	240,000
8-inch	0.3	West Main street	610,000
10-inch	0.3	Foster street	840,000
12-inch	0.2	Ellis avenue	1,100,000
15-inch	0.16	Interceptor	1,650,000
18-inch	0.15	Interceptor	2,700,000
20-inch	0.12 inch	Outlet	3,300,000

For the minimum rates of grade as designed the velocity of the sewage when the sewers are running one-third full will be over two feet per second.

The use of 24 flush tanks is contemplated for the system. They empty automatically and are for the special purpose of flushing the smaller sizes of pipe. The admission of roof water into the sewers is not contemplated, but might be allowed in a few places for flushing the upper ends of the system until such times as the use of those sewers would render unnecessary the admission of the roof water. Any permit to connect the roof with the system should contain a clause giving the village the right at any future time to require the connection to be severed. The admission of roof water might be especially desirable for a time at the upper ends of the system.

The system as designed contemplates sewers on all streets of the village. The streets called Davis avenue and Jones avenue are private streets and not yet tendered to the village or opened to the public. The system as designed will, however, care for the sewage on these streets if in the future they are dedicated to the public and opened.

The profiles also show the elevations and locations of the deep cellars on the various streets, and it is noticed that the system is especially adapted for cellar drainage wherever such drainage is needed.

Respectfully submitted.

KNIGHT & HOPKINS
Engineers

SING SING, N. Y.

Water street sewer

Plans for sewering Water street into the existing sewer at its intersection with Broadway were approved by this Board December 21, 1900.

EAST SYRACUSE, N. Y.

Separate sewer system

Plans for a separate system and disposal works were approved by this Board December 21, 1900.

The contour of the country makes it impossible to discharge the sewage into its only natural outlet, Butternut creek, without artificial means.

The plans provide for the flow of all sewage to a receiving well, 25 feet in diameter, placed near the corner of Second street and Henry street. Over this well and of the same diameter is the gate house containing two 10 h. p. gas engines, the sludge press and tanks for the chemicals used in inducing precipitation.

The chemicals are mixed with the sewage in the receiving well, and the sewage is then pumped from the well into four precipitating tanks each 15 by 40 feet and 6 feet deep.

From these tanks, after precipitation, the effluent is drawn off and flows by gravity 5600 feet to the outlet in Butternut creek.

The sludge is pressed dry and sold for fertilizer.

The engineer's report follows:

To the Board of Trustees, Village of East Syracuse, N. Y.,

Gentlemen—In accordance with your instructions we have made surveys and designed a permanent system of sewerage for your village.

We present herewith a map of your village on a scale of 200 feet to the inch, with contour lines for every 5 feet in elevation.

Upon this map the sewers are designated by black lines drawn through the center of the streets. The sizes of the pipes, rates of grade, direction of flow, manholes, flush tanks, lampholes, etc., are also shown. The elevation of the sewer grade is marked at intersections and important points. Profiles of each street, with detailed plans of manholes, flush tanks and lampholes are also furnished.

We also present general plan of disposal plant. Also form of bid, notice to contractors, together with specifications and form of contract. Both plans and specifications are furnished in duplicate.

Sewers are shown upon the map on all streets where there are any houses at present or where there are likely to be any in several years to come. The streets for which no sewers or profiles are shown are those entirely outside of the built-up portion of the village and outside of any streets that are opened upon the ground.

The system of sewerage as designed is what is known as the "separate system." This system is adopted on account of its effectiveness and economy of construction. The surface water can be readily taken care of through the natural water-courses.

There are no existing sewers, except private drains, and only ordinary depth cellars, and the depths of pipes in the streets are placed generally at eight feet, and the sewers are planned to provide drainage for all cellars.

Flush tanks to discharge 200 gallons of water automatically are provided at all dead ends to insure proper and systematic cleansing.

Manholes are provided at all intersections and changes of line and grade.

Lampholes are provided as indicated, and generally between manholes at intervals of 200 and 300 feet. These structures will afford ample opportunity for inspection and ventilation.

The plan presented provides for a complete system of pipe sewers of sufficient size to safely carry all house sewage to the place of discharge when running half full.

The smallest sewers are 6 inches in diameter and the minimum grade is 0.5 per 100 feet. In most cases the grades on 6-inch pipe are steeper than 0.5, but there are a few instances where we have been forced to use flatter grades than that, but in these cases we have made special provision for flushing.

In making our calculations we have assumed that sewage would be discharged at the rate of 100 gallons per day per capita. Allowing 5 persons to each 50 foot lot or 10 persons to each 50 feet of sewer would result in 20 gallons per day to each lineal foot of sewer over the entire village.

The map shows about 55,000 lineal feet of sewer proper, a territory that would accommodate, on the assumption above, of each person to each 5 feet of sewer, 11,000 people.

The present population of East Syracuse is about 2500. The population is not increasing rapidly, although there is a healthy growth.

The topography of the village and of the surrounding country is such that it has been necessary to bring the sewage to a receiving well located near the corner of Second and Henry streets. The land lying immediately to the east of the village and between the village and Butternut creek is very flat, and also that portion of the village south of the N. Y. C. R. R. tracks. Butternut creek is at a distance of 5600 feet easterly from the proposed location of the receiving well.

The elevation of the water surface of the creek at a point just north of the N. Y. C. R. R. tracks, the place where it is proposed to discharge the sewage, is at an elevation of 42 feet, with the water about 1½ feet deep.

The elevation of the street surface at the intersection of Dawsman and Ellis streets, and also at the intersection of First and Second streets is about 50 feet.

The necessary depth of sewers at these points make it impossible to discharge by gravity into Butternut creek, so that the construction of a receiving well, as above stated, was a necessity for providing a place of discharge at a point where all the sewage could be brought by gravity. This location is outside the residence district and in a locality where it will not be objectionable, as there is not likely to be an increase in the number of dwellings in this vicinity.

The elevation of the sewer at the intersection of Henry and Second streets is 32, discharging into the well at an elevation of 31.60, or about 17 feet below the surface of the ground.

The plan provides for all of the sewage from the westerly slope of the village to be brought southerly through Clark street and across private lands and under the N. Y. C. R. R. Co.'s tracks through a 12-inch tile pipe on a grade of 0.2 per 100 feet to the intersection of First and Burrows streets, and thence through Burrows and Second streets to the receiving well.

The sewage from the easterly slope of the village and north of the N. Y. C. R. R. Co.'s tracks is brought to the intersection of Hartwell and Manlius streets, and thence through a 15-inch tile pipe under the tracks of the N. Y. C. R. R. Co. and on a grade of 0.2 per 100 feet to the intersection of First and Henry streets, and thence, after continuing through Henry street to Second street, where it meets the Second street sewer, it is conducted through a 20-inch tile pipe laid on the same grade for about 100 feet to the receiving well.

The receiving well is designed to be 25 feet in diameter and 25 feet in depth, but as the sewage is discharged about 17 feet below the ground, the available storage in the well will be only about 7½ feet, or about 28,000 gallons.

The plan provides for the sewage to be pumped from the receiving well into the effluent well, from which it will run by gravity through a 15-inch outlet pipe for a distance of 5600 feet to the point of discharge in Butternut creek.

Over the well will be constructed a brick gate house 25 feet in diameter, which will contain two 10 h. p. gas engines, the sludge press and tanks for chemicals, when such are required, and such other necessary equipment. Centrifugal pumps in duplicate are provided. These to be placed in the bottom of the well and power to be applied through vertical shafting. Duplicate pumps and engines are provided so as to provide for accident or injury to pump or engines. As the village is considering the question of electric lights it would be an economical arrangement to combine an electric lighting plant with the sewage pumping plant.

We estimate that with all the present population connected with the sewer, it will take from three to four hours for the well to fill. One pump will empty the well in about an hour, and an hour's pumping will fill one of the precipitating tanks when the same are required and put into the service.

The plan of disposal works presented is that known as " chemical precipitation." The object of the system is to provide for the removal of the solids and impurities held in solution by the sewage and render the effluent sufficiently clear to turn into a stream. The chemicals used are usually lime, copperas and alumina.

The plans herewith presented call for 4 precipitating tanks, each 15 feet wide, 40 feet long, and 6 feet deep, capacity of about 26,000 gallons each. The plans contemplate the discharge of the mixed chemicals into the receiving well just before the sewage is pumped into the inlet channel.

Upon entering the inlet sewage passes through a series of baffle plates and screens, thus thoroughly mixing the chemicals with the sewage. By means of stop planks and valves the flow can be controlled and diverted into the different tanks when, after precipitation, the effluent is drawn off by means of a swinging effluent pipe with a float and discharged through the pipe into the effluent well, from whence it passes by gravity to Butternut creek.

The sludge or solid part left in the bottom of the tank is thence drawn off through the sludge channel into the sludge pit, from whence it can be conveyed to the sludge press and pressed dry and disposed as fertilizer; or if thought desirable, can be spread upon the adjoining land to dry and then be drawn off by farmers. It is probable that some revenue can be realized from this source.

We have measured the flow of water in Butternut creek at low water period and find the flow to be 13,300 gallons per minute, a sufficient quantity of water to accommodate the sewage of from 8000 to 10,000 people without making the water objectionable for anything except domestic use.

In view of the minimum flow in Butternut creek, where it is proposed to discharge the sewage, being as above stated, and that no villages are using this stream as a source of water supply, it is probable that the State Board of Health will not require disposal works to be constructed at the present time.

We also submit herewith a preliminary estimate of the cost of the system in accordance with the plans.

Respectfully submitted.

ALLEN & FARRINGTON
Civil engineers

MAMARONECK, N. Y.

Separate sewer system

Plans providing for a separate sewer system were adopted by this Board December 21, 1900. The Board, however, "reserving the right to at any time require the proper purification of the sewage before its final discharge into the harbor of the village of Mamaroneck as contemplated by the plans."

Mamaroneck harbor forms an indentation of about one mile in the northerly shore line of Long Island sound. The village is located at the innermost part of the harbor, but at a point about

3000 feet from the inshore line the harbor entrance is only 300 feet wide.

As the ebb tides carry off the waters from this inner harbor—estimated at about 75,000,000 gallons—through this narrow opening, it is believed that all the sewage can be surely carried into the sound, so as to render it harmless, by discharging it only at ebb tide. The engineer's report follows:

MOUNT VERNON, N. Y., *October* 2, 1900

J. F. HUNTER, M. D., *Chairman*, Messrs. THEODORE VAN AMRINGE and JOHN D. GOODWIN, *Sewer Commissioners of the Village of Mamaroneck:*

Gentlemen—I submit herewith my report upon the design for a system of sewerage for the village of Mamaroneck. I also submit the following maps, plans, etc., with the report:

General plan. Plate No. 1.

Outlet into Long Island sound, Plate No. 2.

Profiles, Plates Nos. 3 to 9 inclusive.

Disposal works and sewer accessories, Plate No. 10.

Proposal, specifications and contract for the construction of the disposal works.

STATEMENT OF COST OF CONSTRUCTION

In order to have a permanent and established datum to which all elevations should refer I communicated with the United States Coast and Geodetic Survey and with the United States War Department, requesting data as to their established bench-marks in the vicinity of Mamaroneck. I found that the nearest bench-marks which either department had in this vicinity was one located by the United States Coast and Geodetic Survey upon Murray's dock in the village of Larchmont, opposite the residence of Mr. Flagler in the village of Mamaroneck, and distant about one-half mile therefrom. This bench-mark was at an elevation of 2.8 feet above mean high water. With this bench-mark as a basis, a series of bench-marks throughout the village has been established, and all elevations are referred thereto. The datum assumed has been mean high water.

TOPOGRAPHICAL FEATURES

The village of Mamaroneck is situated upon Long Island sound, and the New York, New Haven and Hartford railroad, the main trunk railroad between New York and Boston, passes through the village. The village has an area of about four square miles, and has a water frontage along the shore of Mamaroneck harbor and Long Island sound of about seven miles.

It has extreme diversity of topographical features, extending as it does from the low land adjacent to Long Island sound to the high ridge on the northwest of Mamaroneck avenue.

The Boston post-road, running in a northeasterly direction, divides the village into two sections, the southeasterly section comprising the shore section, and being nearly equally divided by Mamaroneck harbor between Orienta point and Rye Neck.

The post-road at Mamaroneck avenue is nearly a mile distant from the eastern end of Orienta point at the mouth of the harbor. This incision of the harbor into the mainland, with the main portion of the village to be sewered situated upon the innermost portion of the harbor, renders the problem of a sewage outlet more difficult of solution and expensive of construction than would be the case if the village were situated directly upon the sound.

The section of the village lying to the northwest of the post-road is intersected by the Mamaroneck river and its tributaries, the principal one of which is Sheldrake creek. These streams discharge into the Mamaroneck harbor at the intersection of the post-road and Mamaroneck avenue, the tide backing up into the stream for a distance of several hundred feet northwest of the post-road.

Immediately northwest of the railroad the Mamaroneck river diverges to the northeast and drains a watershed of approximately 16 square miles, extending as far north as White Plains and the watershed of the Kensico lakes. Upon this river at the northwesterly boundary of the village are situated the reservoirs of the Mamaroneck water company, which furnishes water to the village of Mamaroneck. This company is controlled by the New

York suburban water company, which furnishes water to the city of Mount Vernon, and it is the stated intention of this company to enlarge the reservoirs at Mamaroneck and construct distributing mains so that the waters of the Mamaroneck river can be used to augment the storage of its Mount Vernon reservoirs for the supply of Mount Vernon.

The Sheldrake creek diverges from Mamaroneck river immediately northwest of the railroad, and following in a southerly and westerly direction has its head in the city of New Rochelle and town of Scarsdale. It drains about 5¼ square miles. Upon this stream are situated the reservoirs of the Larchmont water company, which furnishes water to the village of Larchmont.

Within the limits of the village of Mamaroneck both of these streams and their tributary streams flow through a section of flat lands which have a very gradual ascent from the harbor.

Besides these main streams there are within the village limits minor streams flowing through Rye Neck and emptying into the harbor.

A glance at the topographical map shows that the village is thus divided by these various streams and branches into a series of watersheds which can conveniently carry off the surface water from within the village, but whose watersheds are so extensive that it would be impracticable to cover over the streams and thus utilize them as sewers.

A combined system carrying in one system of pipes both sewage and general drainage, besides requiring that the drainage of the whole watershed be provided for also, necessitates a large and expensive outlet or disposal works, since of course it would be necessary to design such outlet or disposal works to provide for the maximum of flow through the sewerage system.

SYSTEM OF SEWERAGE

In view of the topographical features of the village, I advise that the system be what is known as a separate system; that is, that a system of vitrified clay pipes be arranged so as to carry the sewage matter only, and that the street water, roof water and other surface drainage be provided for as at present, with short drains discharging directly into the various streams throughout the village. This is the only practicable system for the village, and I have therefore shown the system upon the plans.

POPULATION

Mamaroneck is almost exclusively a residential village. While there are two or three factories within its limits, it is not a manufacturing village. The business section in which are located the stores catering to the village and the surrounding country is situated on Mamaroneck avenue south of the railroad, and on the Boston post-road adjacent to Mamaroneck avenue.

Except on Rye Neck and Orienta, the population is a permanent one, remaining during the entire year. On Rye Neck and Orienta the population is largely a summer one. In these sections the property is subdivided into plots of half an acre to several acres in extent, while in the balance of the village a lot frontage of 50 feet is the standard, although the larger number of houses now existing have a greater frontage.

I have located the houses throughout the village and have estimated the population upon the usual ratio of five persons to a house. The total population of the village is 4430.

On Plate No. 1 I have shown the distribution of this population into the various sections of the village sewered by the various trunk and district trunk sewers.

TRUNK SEWERS

I advise that a trunk sewer be constructed alongside the Mamaroneck river and the Sheldrake creek, with a system of district trunk and lateral sewers emptying into the trunk sewers, these to be as shown upon plans.

These trunk sewers will carry the sewage from the whole village, with the exception of Rye Neck, Orienta point and a narrow strip northwest of the post-road and south of Mamaroneck avenue. It will be necessary to construct this sewer partly through private land, the ground for which will be obtained by the sewer commission either by purchase from the owners or by condemnation proceedings, acting under the authority vested in the commission by law. This main trunk sewer, in conjunction with the sewers on Rye Neck, can be brought to a point at the harbor at the foot of Oakhurst avenue. The sewerage system of Orienta point and the section along the post-road can be brought to a point at the foot of Union avenue, opposite the foot of Oakhurst avenue. It will therefore be feasible to connect these two general systems so that the sewage from the whole village can be brought to one point for treatment or disposal, and I have planned the system accordingly.

From the disposal works three trunk sewers diverge. A 24-inch main from the main portion of the village; a 15-inch main from Orienta, and a 10-inch main from a portion of Rye Neck.

The 10-inch main carries the sewage from the portion of Rye Neck southeast of Oakhurst avenue. From this main various lateral sewers diverge, as shown upon the plan. It was necessary to put this main at a flat grade on account of the topography of the section sewered.

TWENTY-FOUR-INCH MAIN

The 24-inch main from the disposal works will skirt the steep edge of the lowland to avoid heavy cutting, until it is at a point opposite the narrow portion of the harbor at the mouth of Guion's creek, and will then pass under the harbor by means of a siphon, as shown upon the profile. The top of the pipe is to be 4 feet below mean low water so as to permit the dredging of Guion's creek to an additional depth if at any time it is deemed advisable. This depth I consider sufficient for any possibilities that can now be foretold.

After reaching the mainland the sewer skirts the edge of the upland for a short distance, and thence passes through a tunnel under the high ground of the Boston post-road adjacent to Spruce street to a point adjacent to the Mamaroneck river, and thence follows closely the Mamaroneck river on the westerly side, the most economical side for construction, gradually reducing from a

24-inch to a 20-inch and 18-inch pipe to a point north of the railroad, from which diverge two 12-inch pipes, one to the west as a district trunk for the Sheldrake river section of the village, and the other to the east as a district trunk sewer for the Mamaroneck river section of the village. In planning the depths and grades for the main sewer and these two district trunks, I studied a number of different plans in order to arrive at the best possible solution of the problem presented by the low ground to the north of the railroad, and the necessity for maintaining the final point of outlet at as high an elevation as possible on account of the cost of pumping necessary in order to transfer the sewage from the pump well into the tanks of the disposal works.

The 12-inch Sheldrake district trunk follows as near as possible the ground of lowest elevation adjacent to the Sheldrake river, so as to avoid heavy cutting. Into this district trunk the various lateral sewers discharge.

On Grand Park and Rockland avenues north of the district trunk I have provided for a larger size of pipe than would be required by the property adjacent to these laterals, so as to permit, if it is hereafter deemed advisable, a section of the territory outside of the village limits connecting with the village system of sewers.

From the Sheldrakedistrict trunktwo subdistrict trunks extend through Ogden avenue and west of Rockland avenue, so as to provide for the sewage south of the railroad and adjacent to Grove street. These sewers go through private property and I have shown the approximate location of them, with a possible straight grade. The exact location and the details where they pass through the private property will be subject to the detail property surveys, as referred to under "rights of way."

I have planned the 12-inch Mamaroneck river district trunk so as to take advantage as far as possible of the streets now existing, thereby avoiding the purchase of land for sewer purposes. Into this trunk the various lateral sewers discharge, as shown on the plan.

From this trunk, at a point east of Barry avenue, a subdistrict trunk extends southerly through private property and under the railroad, so as to provide for sewering the section between Keeler and Harrison avenues and the Mamaroneck river. With this sub-district trunk I have pursued the same plan as to location, etc., as heretofore outlined for sewers through private property.

MAMARONECK AVENUE

Mamaroneck avenue is broken up into short sections of lateral sewers, so that I consider an 8-inch pipe sufficiently large to carry the sewage in the business section at the southern end of the avenue.

FIFTEEN-INCH MAIN

For the Orienta section a 15-inch main leaves the disposal works and passes by a siphon under the channel to Union avenue, thence to Delancey avenue and thence to Meadow avenue. From Meadow avenue the main sewer diverges into two district trunk sewers, one passing through Meadow avenue and through private property to provide for the section adjacent to the post-road on the westerly side of the village, and the other passing northerly through Delancey avenue to the post-road, providing for the section adjacent to the post-road and west of Mamaroneck avenue. From Union and Delancey avenues a 10-inch district sewer passes through Union avenue and Greacen point road, providing for the southwestern section of Orienta. I have arranged the depths and grade of these trunk and district trunk sewers so that the valuable building ground on the low section west of Union avenue and at the west end of the post-road can be sewered by gravity to the disposal works. This plan will necessitate a heavy cutting through Meadow avenue and through South Union avenue, as shown on the profile, but this will be the most economical plan for sewering this section.

DEPTH OF SEWERS

I have established a depth of 9 feet as the standard depth of sewer. The grades of the streets in the village follow, to a large extent, the natural lay of the ground, and it has been necessary to reduce or increase the depths in various places on account of the topography of the streets. The details of this are shown upon the profiles. A 9-foot depth of sewer will permit sewerage facilities in the first cellar of all houses. In two locations only in the village is the ground adjacent to the street so low that sub-cellars are constructed. These locations are on the east side of Mamaroneck avenue, approximately from the post-road to Spencer place, and upon the south side of the post-road adjacent to School street. For both of these sections the ground on the opposite side of the street is high, and the sewer in the street would be in a rock cut. If it is desirable to arrange for sewer facilities for the lowest possible point to which houses upon these properties may be built, rather than increase the depth of the sewers in the street sufficient to permit sewering into the street main, it would be more economical to purchase a right of way and construct a low-level sewer at the rear of the lots, discharging in the case of the Mamaroneck section directly into the main trunk sewer, and in the case of the post-road section into the sewer on Hall street.

SIZE OF SEWERS

I have taken 8 inches as the standard minimum size of pipe to be used for lateral sewers. In a number of cases where there exists a steep grade at the head of a system or for a short distance upon a separate street, with a flush tank at the head of the pipe, I have modified this rule and have planned for a 6-inch pipe. Otherwise the lateral sewers throughout the village are of an internal diameter of 8 inches, with the trunk sewers ranging from 10 inches to 24 inches in size.

In planning the sizes of pipe I have assumed that there would be one house for each 50-foot lot and 5 persons to a house, making a population of 20 persons for each 100 feet of sewers. The consumption of water is assumed at 75 gallons per capita per day, and the day's sewage discharged in 16 hours, thus giving the maximum amount of flow of the sewage during the hours of greatest flow. The sewers are designed to flow half full with the exception of the main trunk sewer along the Mamaroneck river south of the railroad. This section of sewer flows through a valley with precipitous sides, and the inflowing sewers all enter above the top of the trunk sewer.

To have calculated the size of this section on the basis of the sewer flowing half full would have unnecessarily increased the size of the mains.

The calculations have been made on the basis of a normal condition of flow without making any allowance for head. Where the sewage passes from one sewer to a lower level the drop manholes are so arranged that the outfall sewer will receive the full effect of the head of the sewage in the direction of its flow.

The velocity and the carrying capacity will therefore be increased.

The cities of Mount Vernon and New Rochelle have now a population respectively of 25,000 and 10,000.

During the past 15 years they have about doubled in population. Mount Vernon, which is nearer New York city, has increased more rapidly than New Rochelle. The ratio of increase lessens as the distance from New York city increases, and therefore Mamaroneck has probably not doubled in population in the past 15 years. The following is a statement of the present population on the various trunk and district trunk sewers, the population for which the sewers will provide, and the number of years it will require to attain this population on the basis of doubling the population for each period of 15 years:

SEWER	Present population	Possible population	Years to attain possible population
24-inch trunk	3,410	32,000	50
15-inch trunk	700	5,600	43
10-inch Taylor lane district trunk	320	2,800	45
Total for entire system	4,430	40,400	45
18-inch main trunk	2,960	24,230	45
12-inch Sheldrak district trunk	695	5,000	43
12-inch Mamaroneck river district trunk	730	6,200	48
10-inch Sheldrake district trunk	500	3,000	40
12-inch Orienta district trunk	500	3,500	43
10-inch Orienta district trunk	450	2,800	40

The density per square mile of the possible total population of 40,000 is over one-half the borough of Brooklyn.

On account of the broken character of the topography of the village the lateral sewers are broken up into short lengths discharging into the trunk and district sewers. This situation is graphically shown upon the plan plate 1 by the number of flush tanks.

LENGTH OF SEWERS

There are shown upon the plan 193,919 lineal feet of sewers, or 36.65 miles, which is 6.35 miles of sewers more than the 30.3 miles which was contained in the estimate in the specifications.

The sewers are divided among the various sizes as follows:

6-inch	29,536 feet.
8-inch	115,362 feet.
10-inch	31,294 feet.
12-inch	9,153 feet.
15-inch	2,334 feet.
18-inch	1,540 feet.
20-inch	1,100 feet.
24-inch	3,600 feet.
Total	193,919 feet.

FLUSH TANKS

At the upper end of each lateral sewer system I have planned for the construction of a flush tank or flushing apparatus. In locations where, on account of the character of the population and the grades of the sewer it will be advisable to have constant flushing, I plan to construct an automatic flush tank which will flush the sewers at regular intervals. At other points where the grades are steep and an infrequent flushing will be sufficient to maintain the sewers in good condition, I plan to have a direct connection by a 3-inch pipe from the flushing manhole to the water mains, the flushing to be accomplished by turning a valve in the manhole by hand, and allowing the full force of the water from the street mains to flow in the direction of the sewer. This plan will give proper flushing, and will also economize water.

MANHOLES

I have located manholes at the intersections of all sewers and at all breaks of grades, and between these I have located intermediate manholes, so that the distance between manholes would range from 300 to 400 feet, depending upon the grade and size of the sewer, thus giving an opportunity for constant, thorough inspection of the sewer, and enabling the sewer to be cleaned, and any stoppages which may occur to be removed without opening the highways.

At the manholes the inflowing sewer is at an elevation of at least half the diameter of the outfall pipe above the grade line of the outfall pipe.

OUTLET

I have considered various plans for the disposal of the sewage, among these being a system of three disposal works to treat separately the sewage from Orienta, Rye Neck and the main portion of the village north of the post-road; an outlet of the main channel of Long Island sound; a single disposal works on Harbor island, with chemical treatment and the discharge of the effluent into the harbor, and the location of a single disposal works with the discharge of the effluent on the outgoing tide at the mouth of the harbor, which last I have shown upon the plans.

I discarded the plan for three disposal works as a plan involving large expense both for construction and maintenance of the works, with comparatively little saving in the cost of the construction of the sewers.

To provide an outlet into the main channel of Long Island sound would necessitate the construction of a long main outside of the limits of the village and under the waters of the sound, either to a point off Orienta outside of Black Tom, or a point off Rye Neck near the Scotch Caps. Without making detailed estimates of the cost of either of these plans, a brief examination of the ground convinced me that the expense would be too great to make either of these points of outlet practicable if there were any other possible solution of the problem.

In considering the question of the location of the disposal works upon Harbor island I found that it would be necessary to construct the outlet mains under the wide portions of the harbor where the expense of construction would be great on account of the character of the bottom.

It would be inadvisable to discharge the effluent from any disposal works located upon Harbor island without submitting it to a high treatment, as a large part of the effluent, on account of the tides in the harbor, would be likely to remain inside the harbor. To give a high treatment to the sewage would necessitate the discharge into the harbor of a large amount of lime and other chemicals, which exert an extremely injurious effect upon the fishing for which this section is noted, and would in time to a large extent destroy this fishing, which is not only a source of great pleasure, but is a means of livelihood to a number of the inhabitants.

I therefore endeavored to find a point which would be so located that any material discharge would be carried out into the sound, and at the same time bear such a relation to the entire system of sewers that the utmost economy would be attained in the construction of the main outlets, which are the most expensive of the system.

I have decided upon a point at the foot of Oakhurst avenue as the most advisable point for the location of the disposal works and outlet. The outlet from Mamaroneck harbor into the sound at this point is only about 300 feet wide. Through this channel during the ebb tide flows the entire body of water between low and high water mark in Mamaroneck harbor. As Mamaroneck harbor has an area of about 135 acres, I estimate that this body of water amounts to at least 75,000,000 gallons, and the proportion of sewage effllulent to the discharged tide-water would be in the ratio of about a wine-glass to a hogshead. The channel from the harbor to the sound through this outlet has a depth of eight feet at mean low water.

In order to determine the character of the tidal flow through this channel I made experiments with a number of bottles. These bottles were placed in the water from one to four hours after the tide began to ebb, and contained numbered postal cards requesting the finder to advise me as to the date and place of finding the bottles ashore. Of the 36 bottles sent out I have had returns from 15.

These bottles were sent out from various points on the east side of the harbor, from the foot of Oakhurst avenue and Union avenue, and from various portions of the outer harbor. Some of these bottles were attached to floats upon which vanes were suspended so that they would be influenced by the under currents in the channel.

An examination of the course which the various bottles took after being sent out convinced me, first, that while a large body of water is discharged from Mamaroneck harbor through a narrow opening, the obstructions in the harbor, the conformation of the bottom, and the inflowing streams cause eddies, which have a tendency to keep articles floating on the surface within the limits of the harbor. Second, that similar causes effect anything upon the surface of the water adjacent to the eastern shores of the outer harbor, particularly where Mill creek flows into the sound. The outflow of this creek south of Hen island creates a decided ingoing eddy on the north of the island. Third, that any matters discharged into the channel opposite the end of Oakhurst and Union avenues is carried directly out into the sound and is disseminated through and diluted by the main waters of the sound.

Of the 15 bottles from which I have received information six were found adjacent to Mamaroneck, and were those bottles which had been noticed as being affected by the eddies at the points where they were put into the water. Of the nine bottles found at other points than Mamaroneck, six were put into the water in the channel adjacent to the foot of Oakhurst and Union avenues. The reports from the bottles found show that four of them were found off New Rochelle; two off Larchmont, one was seen afloat in the water of Oyster Bay about five days after its discharge, and one was seen in the middle of the sound two days after its discharge.

Immediately after the discharge a strong east wind sprang up and prevailed for several days, thus accounting for the direction which the bottles took after their entry into the sound. With normal northwest winds which prevail in this section the bottles would probably have taken an easterly course. This was the case with a series of bottles which I discharged at different times off City island during the course of my investigations upon the question of an outlet sewer for the Bronx valley in 1896. Some of the bottles at that time floated from 15 to 20 miles east before finally being thrown up on the shore.

While the experiments and investigations show that any matter put into the channel at the foot of Oakhurst avenue would be carried out into the sound, I advise against any such discharge without first taking means to retain the papers and other solid matter which might be thrown upon the shore, and which upon a receding tide might cause a nuisance. While it is probable that any such solid matter would be carried into the sound and away from Mararoneck, and would indeed form such a small relative proportion of the matter normally floating on the sound that it might not create a direct nuisance at any one point, yet it is to the interest to every village on the sound to maintain the waters of the sound as free from contamination as possible.

I have therefore planned in the disposal works to separate the solid matter from the liquid matter, and to allow the liquid matter to be discharged only upon that portion of the outgoing tide during which the tide is strongest, so that there will be the greatest possible opportunity for the extreme dilution of the sewage. The very finely divided solid matter which might in small quantities be discharged at times, instead of creating a nuisance would be a benefit, since it would be a source of food supply for the fishes. In this situation I do not deem it necessary to chemically treat the sewage, since this would entail a constant and increasing expense, without gaining any direct benefit. The salt water into which the sewage is discharged will sufficiently disinfect and purify the sewage without the use of any further chemical.

DISPOSAL WORKS

The following is the description in detail of the disposal works as planned:

From the 24-inch main outfall sewer and the 15-inch sewer from Orienta, the sewage enters a pump well from which it is pumped into one of the two screen chambers. These screen chambers are so arranged that they can be used alternately when so desired. In the screen chambers are retained the papers, apple cores and other solid matters which would be likely to be precipitated along the shores of the sound, thereby causing a nuisance upon a receding tide. The screen chambers are arranged with a connecting by-pass pipe controlled by a valve, and a by-pass pipe connecting with the tidal chamber, so that in case it is desirable at any time to prevent the sewage going into the storage tanks it can be diverted into the tidal chamber through the by-pass pipe.

The sludge remaining in the screen chambers can be either disposed of in its semi-liquid state to farmers for fertilizer; can be treated so as to make it innocuous, and used to fill in low lands which may be in a not too prominent location, or, after treating, can be pressed and dried and either used in that condition as a fertilizer, or cremated in the boilers at the disposal works. Any one of these plans or a combination of several of them can be adopted as may be found from time to time to be economical and advisable.

From either of the screen chambers the sewage passes into the inlet chamber of the storage tank opposite tank 1. The sewage is prevented from flowing into the inlet chambers of the remaining tanks by dam walls, until the sewage in tank 1 attains a depth within one foot of the full capacity of the tank, when the sewage will flow over the dam wall between the inlet chambers of tanks 1 and 2, and thus into tank 2 until the sewage in tank 2 is the same depth as in tank 1, within a foot of its full capacity, when the sewage will flow into tank 3, and so on until all of the four tanks are full.

The sewage is prevented from flowing from tank 1 through the outlet chamber into tanks 2, 3 and 4 by dam walls dividing the outlet chamber into sections corresponding with the various tanks. The sewage on the outflow passes from the various sections of the outlet chamber through an opening in the lower part of the dam wall. At this opening is provided a gate which is hinged at the top and swings toward the outlet. When the storage tanks are empty this gate is kept closed by its own weight. As tank 1 fills the pressure of the water against the gate keeps it tightly closed. As tank 2 becomes full the pressure is relieved until the sewage in tank 2 attains the same height as that in tank 1, when the gate again remains closed from its own weight, the water pressure in the two tanks balancing. At the time of discharge the sewage is first discharged from tank 1, whereby a pressure of water from tank 2 is created upon the gate, thus opening it and keeping it open until the entire tank or tanks are empty.

The discharge of the sewage is through a tidal chamber in which is located a tidal gate. This gate is so adjusted that the sewage is discharged only on certain portions of the ebb tide.

Gates are provided at both the inlet to the tanks from the inlet chamber and the outlet from the tanks into the outlet chamber, which will be worked by hand by means of a rod passing over the roof of the tanks whereby any individual tank can be cut off from the balance of the series if so desired at any time.

The bottoms of the inlet chamber with storage tanks and the outlet chamber are so sloped that there is a continuous fall from the highest point in the inlet chamber to the lowest point in the outlet chamber at the mouth of the outlet pipe, thus assuring a complete and clean discharge from the tank.

The capacity of the four tanks is one-half day's sewage from the present entire population of the village. This size leaves considerable margin for growth in the immediate future, since the sewage will be stored for only about eight hours, the time the tidal gate is closed.

In designing the size and character of the tanks I have endeavored to so construct them that they will fulfill not only the present requirements, but also all future requirements in so far as they can possibly be predicted.

If the present system of disposal is continued after the population increases beyond the capacity of the tanks as at present designed, the only change necessary to provide for the additional population will be the addition of extra tanks in the series from tank 4 and the construction of dam walls and the gates in place of the present outlet wall at the ends of the inlet and outlet chambers.

If at any time in the dim and distant future it should be found advisable to change the method of disposal and to treat the sewage chemically prior to its discharge into the channel, the only change necessary to the disposal works from the present plan will be to construct in the outlet chamber a conduit for the treated effluent from the tank two feet above the bottom of the present outlet chamber as a means for carrying off the sludge from the tanks. A change of the outlet valve at the entrance to the tidal chamber so that the treated effluent can discharge into the channel through the tidal chamber and the sludge discharge into a sludge well will complete the necessary changes. With this arrangement the chemicals can be added to the sewage either in the pump well, the screen chamber or the storage tanks, as may be deemed advisable.

Since the location of the disposal works is at a prominent point, I have designed the work so that there will be nothing appearing above the ground except the pumping station. This will be built of wall stone, thus giving a rustic and picturesque effect. With the growth of vines over the walls, the pumping station will add to the picturesqueness of the landscape rather than detract therefrom, and therefore there can be no possible objection raised against the proposed location of the disposal works.

TIDAL GATE

As heretofore stated, the sewage will be discharged from the storage tanks only during a certain portion of the tide. If the sewage were to be discharged during the entire outgoing tide a simple tidal gate which would open as soon as the tide begins to fall and close as soon as the force of the incoming tide exceeds the force of the discharging sewage would be the simple device employed; but if this device were used, the sewage would begin to discharge before the outgoing tide would attain any velocity and would continue to discharge, not only during the last of the outgoing tide, when the velocity would again be at a minimum, when it would not be sufficient to carry the sewage into the channel, but would also discharge during at least a portion of the rising tide. The portion of the sewage so discharged on the rising tide and on the last of the ebb tide would flow back into the harbor, a condition which it is advisable to avoid.

The average rise and fall of the tide in the vicinity of Mamaroneck is 7½ feet. The time occupied by the fall or rise of the tide is from six to seven hours, making approximately a foot rise and fall in an hour. I have planned a device in connection with the disposal works so that the sewage will not begin to discharge until one and one-half hours after the tide begins to fall, or, more correctly, until it has fallen one and one-half feet from mean high tide, and will cease to discharge when the tide has fallen within one and one-half feet of mean low tide, and insuring a swift outgoing current which will carry the discharged effluent out into the channel.

I have also arranged the device so that the time of discharge can be regulated according to the amount of effluent discharged. With a small amount of effluent it will be advisable to discharge it during a short period after the discharge gate is opened, one and one-half hours after high tide. The rate of discharge of the effluent during the time the tide gate is open can be controlled by the discharge valve in the outlet chamber.

The device used to open and close the discharge gate is as follows: A tidal chamber pipe (D) connects at its lower end by a pipe with the channel, so that the water will rise and fall within the tidal pipe to the same height as the tide in the channel. Within the tidal chamber pipe will be a weighted air chamber (E) of sufficient weight to operate the mechanism of the gate during the falling tide, or when it is not supported by the water and of sufficient air capacity so that the weight of the air chamber is supported upon the surface of the water. The weighted air chamber is connected with the gate operating mechanism by a rope (F) working over a pulley (R). At the opposite end of this rope from the air chamber is a weight (A) sufficiently heavy to maintain the rope connecting it with the air chamber perfectly taut and in position on the pulley wheels. This weight, as it is raised or lowered by the action of the tide upon the air chamber, works the direct mechanism for opening and closing the gate.

As the tide and air chamber (E) fall, the weight (A) rises and engages projecting arms (G-G) on two traveling carriages (B-B). These carriages (B-B) are connected by a rod (H) and rope (I) with a wheel (J) connected with the gate (K) on the interior of the discharging pipe. As the weight (A) rises it raises the carriages (B-B) and thereby opens the gate.

The projecting arms (G-G) on the traveling carriages are hinged (L) and so adjusted that when the gate is opened a connecting pin (M) becomes disengaged, and the projecting arms (G-G) are pushed back out of the way of the rising weight (A) until it strikes a lug (S), thereby permitting the weight to pass the opening mechanism. A spring attached to the traveling carriages holds them in position upon the guides until the closing of the gate brings them back into their original position.

As the weight (A) continues to rise with the falling tide, it engages, at the proper height, the closing device (C-C), which is similar in construction and operation to the opening device, except that the rope (N) attaching it to the gate wheel (J) on the outlet pipe of the discharge main is attached to the opposite side of the gate wheel, and it is so adjusted that when the gate (K) is fully closed the projecting arms (O-O) are disconnected and the weight (A) passes above the carriages (C-C) until the air chamber (E) rests upon the bottom of the tidal chamber pipe. As the gate (K) closes it brings the opening device (B-B) into its original position.

As the tide rises and the weight falls, a projecting pin (P-P) on the weight engages the catch (Q-Q) on the traveling arm, throwing the arms into lock position.

The gate (K) in the discharge pipe is pivoted in the center, so that the least possible amount of force will be required to open it.

I have arranged this to be operated by the tide in order to economize the amount of labor necessary in operating the disposal works. All the attention that will be required will be an occasional oiling of the movable parts.

SECTIONS NOT SEWERED

The only sections of the village which cannot be sewered by gravity into the system as planned are Long beach and a few isolated points on the hummocks surrounded by salt meadows adjacent to Larchmont harbor, and the narrow strip of land between Van Amringe mill pond and Long Island sound. Upon these points there can be located only isolated houses, the sewage from which, after passing through a cesspool to retain the solid matters, can be discharged directly into the sound at all times of tide without creating any nuisance.

RIGHTS OF WAY

Besides the private land required in order to construct the trunk sewer along the Mamaroneck river and Sheldrake river as heretofore referred to, it will be necessary in a number of other cases to purchase private land in order to obtain an outlet for the sewage for several sections varying in size. The greater number of these are situated upon the outskirts of the village, where the land is only partially subdivided. In these sections there is no pressing immediate need of a sewer, and I will show upon the plan a general location for the sewer, leaving for future consideration the question of the actual specific location. This location would be determined largely by the economical subdivision of the properties through which the strip would pass. If the sewer commission should condemn a strip through the property without reference to the relation of the strip to the economical subdivision of the land, it would be necessary for the village to pay for the land and cost of the condemnation proceedings, while if the property were either laid out or the strip so located as to come within the lines of a proposed street it is probable that, in almost every instance, the right to lay and maintain a sewer could be obtained from the owner without cost to the village.

At two points particularly it will be advisable to acquire a right of way for the construction of the sewer in order to provide sewerage for that section of the village for which the need is most pressing; that is between the post-road and the railroad and Grand Park and Barry avenues.

The section between Mamaroneck avenue and Rushmore avenue and north of Prospect avenue, or High street, has a natural drainage to the railroad at the intersection of Rushmore avenue and Bishop avenue. A sewer following this natural drainage would, from this point of intersection, pass under the railroad and into the main sewer on Franklin avenue. In order therefore upon this plan to drain the section referred to it would be necessary to construct the main sewer north of the railroad and through Franklin avenue, condemn a strip between Franklin avenue and the railroad, and construct the sewer through this strip and under the railroad embankment, where at this point on the south side is a heavy masonry retaining wall.

I have arranged an alternate plan for this section which I have shown upon the drawings, which plan I advise the commission to adopt. This alternate plan is to bring the sewage to the intersection of Rushmore and Stanley avenues through Stanley avenue to Mount Pleasant street; thence through the low lots immediately to the rear and south of Hough's blacksmith shop; thence under Mamaroneck avenue and through the low ground to the south of Spencer place, to connect with the main trunk sewer adjacent to Mamaroneck river. I have made inquiries as to the values of the property through which the sewer would pass, and I find that not only will this plan enable the sewage of this section to be cared for at the earliest date and with the least initial expense, but also that it will be the most economical plan.

The sewage of that portion of Rye Neck lying between Tompkins and Halstead avenues and Melbourne and Barry avenues, following the topography of the land, would center at a point on Melbourne avenue just north of Brook street. In order to carry the sewage from this section to the main sewer through the streets a cut about 17 feet would be required at Melbourne and Halstead avenues, with a corresponding cut along Halstead avenue before the normal depth of sewer could be attained. This heavy cutting can be obviated by the purchase of a strip or right of way between Melbourne avenue and Union avenue, about 150 to 200 feet north of Brook street. Union avenue at the west end of this strip is about nine feet lower than Melbourne avenue at the east end, so that the sewer can be constructed through this strip, connecting directly through the streets with the main outlet sewer, and still maintain its normal depth from the surface.

Besides the advantages for sewer purposes which could accrue to the village by the purchase of this strip, there would also be a material advantage from the fact that it will divide the extremely long block between Melbourne and Union avenues and Tompkins and Halstead avenues into two shorter blocks, thus giving freer access between the section east of Melbourne avenue and the railroad station.

ESTIMATE OF COST

In preparing the estimate of cost I have prepared an estimate of each individual street, and have arranged in the following statement the streets with relation to the sections on the map, showing the distribution of population, so that the cost of sewering any particular section can be readily ascertained.

As a basis of cost per lineal foot of sewer I have used the higher bids of the contractors in a recent competition on similar work in this section. On the various streets and sections of sewer I have made an approximate estimate of the amount of rock which would be encountered in the sewer trenches. As it is impossible, prior to the construction of the sewer and without extended soundings, to determine the exact amount of rock which would be encountered, I have endeavored to be extremely liberal in my rock estimates, so that the cost of the sewer by these preliminary estimates would be a little above what will be the actual cost when the sewers are constructed. In the estimate for sections 8, 9 and 10 and part of 6, item 2 in the summary, amounting to $125,556.71, the cost of the rock excavation amounts to $62,061.23, or practically one-half of the total cost of the sewer. While this ratio will vary throughout the village, the total cost of the rock excavation forms a very large proportion of the estimated cost of the sewer.

The total cost of the entire system, including the disposal works, is at a rate of $12,298.73 per mile.

The following is a detailed statement of the cost:

Sections 8, 9, 10 and Part of 6

24-inch main trunk	$19,090 00	
20-inch main trunk	2,665 00	
18-inch main trunk	3,665 00	
		$25,420 00
Railroad avenue	$4,619 79	
Washington place	1,946 20	
Ward avenue	2,773 22	
Spencer place	1,965 78	
Mamaroneck avenue, south of Franklin	8,714 06	
Stanley avenue	2,023 01	
Mount Pleasant street	8,203 72	
Rushmore avenue	4,672 33	
Cross street	1,597 84	
Grove street, east of Grand Park avenue	3,560 00	
Prospect and High streets	4,842 12	
Short street	433 16	
		45,351 23

Halstead avenue to Barry	$4,190 00	
Grade street, south of Railroad	369 98	
Bridge street, south of Railroad	369 98	
Brook street	1,191 36	
Tompkins avenue	4,510 13	
Post-road, Cross street to Barry avenue	7,512 20	
Barry avenue, south of Railroad	4,805 70	
Beach avenue	2,972 75	
Melbourne avenue	3,059 55	
Union avenue	3,493 09	
Du Bois street	1,320 00	
8-inch, Melbourne to Union avenues	1,775 00	
Spruce street	1,370 00	
10-inch, Mamaroneck avenue to 24-inch trunk	528 00	
		$37,467 74
East Jefferson street	$4,843 49	
Grade street	370 00	
Bridge street (Jefferson to Railroad)	370 00	
Union street (Depot place)	320 00	
		5,903 49
		$114,142 46
10 per cent for engineering and inspection		11,414 25
		$125,556 71

Section 5 and Portion of Section 6 (Not included in former statement)

Van Ranst place	$465 30
12-inch sewer, Van Ranst place to 18-inch main	705 00
Sheldrake place and 400 feet 8 inches	945 00
Lester avenue	462 50
Park avenue	637 50

Nostrand avenue	$556 35	
12-inch trunk sewer to River street	4,348 00	
Willow street	728 80	
Bridge street	1,463 54	
Cedar street	778 00	
Meadow street	2,321 24	
Second street	1,235 00	
Third street	1,456 00	
River street	1,697 00	
Grove avenue	2,450 00	
Barry avenue, north of Railroad	3,338 00	
Mamaroneck avenue, Franklin to Barry	3,845 00	
		$27,432 23
10 per cent for engineering and inspection		2,743 22
		$30,175 45

Section 7

10-inch trunk to West street	$7,250 00	
Halstead avenue, west of Barry	6,280 00	
West street	1,455 00	
Florence street and extension	3,500 00	
Jensen avenue	3,691 25	
Keeler avenue, 6-inch	1,480 00	
Harrison avenue, 6-inch	450 00	
		$24,106 25
10 per cent for engineering and inspection		2,410 63
		$26,516 88

Section 3

Winfield avenue	$2,377 25
White Plains road	1,526 75
Elliot avenue	399 50
Derman avenue	399 50

Orchard avenue	$399 50	
Bradford avenue	399 50	
		$5,502 00
10 per cent for engineering and inspection		550 20
		$6,052 20

Section 2 and Portion Section 11, Adjacent to Grand Park avenue

Franklin avenue to Grand Park avenue	$1,717 75	
Grand Park avenue	6,572 62	
Clay street to Grand Park avenue	1,764 85	
West Jefferson street to Grand Park avenue	1,858 00	
Washington street to Grand Park avenue	3,483 60	
Grand street, Winfield to Grand Park avenue	625 95	
Warren street	2,238 00	
Union avenue	3,318 25	
Sheldrake avenue	1,814 00	
Bishop avenue	1,005 75	
Grove street	2,154 00	
		$26,552 77
10 per cent for engineering and inspection		2,655 28
		$29,208 05

Section 1 and Balance Section 11

Waverly avenue	$1,583 85	
Center avenue	1,785 94	
Fayette avenue	2,247 10	
Northrop avenue	865 00	
Grand street, west Grand Park avenue	625 95	
Ogden avenue	1,268 40	

Rockland avenue	$3,376 86	
Grove street, west Grand Park avenue	5,245 00	
Florence street, Sand street	1,090 50	
10-inch, Ogden to Grove	1,800 00	
10-inch, main end Sheldrake district trunk	748 00	
10-inch main, Grove street to Sheldrake district trunk	2,400 00	
		$23,036 60
10 per cent for engineering and inspection		2,303 66
		$25,340 26

Section 14

15-inch siphon and to Delancey avenue	$8,248 25	
Delancey avenue, post-road to Union	4,414 45	
Post-road, Cross street to Humphreys	10,134 00	
School street	1,819 00	
		$24,615 70
Hall street	$1,232 50	
Old Boston post-road (eastern part)	3,630 00	
Boston curve	601 00	
West Union avenue	7,881 00	
South Union avenue	4,477 00	
Meadow avenue	2,884 00	
Stiles avenue	652 30	
Beach avenue	1,307 80	
Beach place	623 00	
Seney avenue and Orchard place	2,240 90	
Forest avenue	1,474 00	
Heathcote avenue	619 30	
Delancey avenue, 8-inch, south end	1,262 10	

Walton avenue	$4,833 10	
Claglin avenue	2,287 00	
		$36,005 00
		$60,620 70
10 per cent for engineering and inspection		6,062 07
		$66,682 77

Section 12

10-inch, Old Boston post-road, district trunk	$6,975	
Old Boston post-road	2,104	
Post-road	3,580	
		$12,659 00
10 per cent for engineering and inspection		1,265 90
		$13,924 90

Section 13

10-inch Greacen point road	$2,587 50	
8-inch Orienta avenue district trunk	1,170 00	
Orienta avenue	2,407 50	
		$6,165 00
10 per cent for engineering and inspection		616 50
		$6,781 50

Section 15

12-inch–10-inch Guion creek district trunk	$5,612 50	
Post-road, west Barry avenue	9,878 00	
Keeler avenue	800 00	
Harrison avenue	3,036 50	
Jensen avenue	2,863 00	
Sophia street	549 50	
Stuart avenue	2,338 00	

Union avenue, Oakhurst to Post-road	$5,190 00	
Eddy lane	315 00	
Oakhurst avenue	9,831 50	
8-inch, Oakhurst avenue to Guion creek district trunk	450 00	
		$40,864 00
10 per cent for engineering and inspection		4,086 40
		$44,950 40

Section 16

10-inch Taylor lane district trunk	$3,900 00	
Union avenue, south of Oakhurst	2,680 00	
Taylor lane	7,208 20	
8-inch Taylor lane district trunk	825 00	
		$14,613 20
10 per cent for engineering and inspection		1,461 32
		$16,074 52

Section 4 and North Portion Section 3

Mamaroneck avenue north of Barry	$8,280
Bryant circle	1,328
Morgan street	799
Arthur street	365
Lawrence avenue	1,115
Grant terrace	750
Knickerbocker avenue	1,835
Sound View avenue	2,315
Garfield place	500
Carroll place	410
Chestnut avenue	1,656
Villa avenue	900
Ellis place	450
Grove street	1,165

Urban street	$1,315	
Winfield avenue	1,000	
10-inch main	8,050	
		$32,233
10 per cent for engineering and inspection		3,223
		$35,456

Summary

Item 1, disposal work and outlet	$24,029 17
Item 2, sections 8, 9, 10, part section 6	125,556 71
Item 3, section 5 and part of section 6	30,175 45
Item 4, section 7	26,516 88
Item 5, section 3	6,052 20
Item 6, section 2, parts of section 11	29,208 05
Item 7, section 1, parts of section 11	25,340 26
Item 8, section 14	66,682 77
Item 9, section 12	13,924 90
Item 10, section 13	6,781 50
Item 11, section 15	44,950 40
Item 12, section 16	16,074 52
Item 13, section 4 and north part section 3	35,456 00
Total cost	$450,748 81

The following is an estimate of the cost of those sections which contain a population of 3390, or over three-fourths of the total population of the village:

Item 1, disposal works and outlet	$24,029 17
Item 2, sections 8, 9, 10, part section 6	125,556 71
Item 3, section 5 and a part of section 6	30,175 45
Item 6, section 2 and a part of section 11	29,208 05
Item 8, section 14	66,682 77
	$275,652 15

PRIVATE SEWERS

There are very few private sewers within the village. In Orienta the residences along the shore have private sewers emptying directly into the sound. It is not practicable to make any of these sewers a part of the permanent sewerage system.

There is a private sewer extending along Mamaroneck avenue from north of Prospect avenue or High street to the harbor. The location of this sewer is not indicated upon the surface of the ground, and I am informed that it is of shallow depth and have therefore not considered it as a part of the sewerage system.

On Union avenue, Rye Neck, running south from the Boston post-road, there is a private sewer with man-holes upon it which I have shown upon the plans to be maintained as a public sewer, extending from its present outlet into Guion or Stony creek under the creek by a siphon, to discharge into the 10-inch Guion creek district trunk sewer.

There is also a lateral sewer upon Stuart avenue which falls to a point in the block between Union avenue and Sophia street, thence going through private land, discharges into Guion creek.

In order to utilize this sewer as a part of the sewerage system it would be necessary to purchase the right of way over the property and either construct a district trunk sewer upon the north side of Guion creek, or a siphon under the creek, in order to connect it with the 10-inch Guion creek district trunk sewer. I consider that in this situation it would be more economical to construct a sewer in Stuart avenue which would discharge through the district trunk sewers located within the street lines, as shown upon the plan.

PROPOSAL, SPECIFICATIONS AND CONTRACT

In the preparation of the proposal, specifications and contract I have endeavored to cover every point which could possibly be encountered in the construction of the entire system of sewerage.

I have left blank spaces throughout the specifiations and contract which will be filled in with the proper data for each section of sewers for which, from time to time, bids are asked or contracts given.

The contractors are required by the specifications to assume all responsibility of construction, to furnish all classes of material of proper grade and workmanship, and to restore all streets in perfect condition with the same character of pavement existing upon the street at the time of the commencement of the construction of the sewer, and to keep the work in repair for a period of six months from the presentation of the certificate of the final completion of the work.

Respectfully submitted.

JOHN F. FAIRCHILD
Engineer

Investigation by Order of the Governor

CATSKILL

Eastern paving brick company.

ALBANY, *July* 31, 1900

HON. THEODORE ROOSEVELT, *Governor of the State of New York,*
Albany, N. Y.:

Dear Sir—I have the honor to transmit herewith the report of a committee of this Board, together with the testimony taken in connection with the nuisance caused by the Eastern paving brick company at Catskill, N. Y.

Very respectfully
BAXTER T. SMELZER
Secretary

REPORT

HON. THEODORE ROOSEVELT, *Governor of the State of New York:*

Sir—In pursuance of instructions received from you for a further investigation of the nuisances complained of in connection with the Eastern paving brick company of Catskill, we beg to report as follows:

At a meeting of the State Board of Health held in the city of New York on the 10th day of July, 1900, the undersigned were appointed a committee to visit Catskill for the purpose of making the investigation ordered by you.

The committee met in Catskill, July 18, 1900, all parties interested in the hearing having been duly notified.

The testimony taken at the hearing is hereby annexed and forms a part of this report.

It was shown in the behalf of the company that since the issuance of your first order, the company submitted the plans recommended by this Board for a single stack, with which the several chimneys of the kilns were to be connected, to a competent firm of engineers, who investigated the same, and reported that the plant was impracticable from an engineering standpoint, the soil being of such a nature, and the space at the disposal of the company being so limited, as to make it practically impossible to erect a stack of sufficient size to receive the smoke and gases from the 240 chimneys. The report from the engineers upon this subject is hereto annexed (Exhibit A).

It was also shown by the testimony of several people connected with the company that the pipes for the consumption of smoke and gas had been tried in some of the kilns and had proved unsatisfactory. Evidence also was offered showing that at an expense of nearly $1000 a month, the company had subsituted a practically smokeless coal for that which had heretofore been employed in the kilns, and all parties agree that there had been far less smoke this season than before the new quality of coal had been adopted as a fuel. This fact was corroborated by several prominent citizens of Catskill who were in no way interested in the affairs of the company. Plans were also submitted for a system of four stacks 100 feet high, with which it would be impossible to connect chimneys, and the company expressed to the committee their willingness to proceed at once with the construction of these stacks, provided the same was approved by the Board of Health. Plans were submitted by the officers of the company for a system of four stacks 100 feet high into which all the chimneys could be conducted, the said plans being accompanied by the approval of the consulting engineers who expressed the opinion that they were feasible and would remedy the difficulties complained of. These plans and the letters from the engineering company are hereto annexed (Exhibit B).

The company also presented a report from Dr. Cyrus Edson, former commissioner of health of New York city, and for several years a member of the State Board of Health, which was in the nature of expert evidence, going to show that the conditions as existing at the *present* time were not such as constitute a public nuisance. Dr. Edson also testified that in his opinion the gases from these chimneys would be dissipated into the atmosphere, and could not possibly be a cause of complaint for more than 500 feet from the location of the kilns.

He also believed that the plans submitted by the company and approved by the consulting engineers as before stated would abate the alleged nuisance as far as smoke and gas are concerned. Dr. Edson also suggested that the windows of the grinding room where the shale and clay are prepared for use should be kept closed, and a fan arranged for the disposal of the dust in a way that would not allow it to escape into the atmosphere. This is a well-known plan which is in use in many similar establishments and is in no sense an experiment.

The health authorities of the village of Catskill were present at the hearing and had ample opportunity to cross-question witnesses and to present evidence if they so desired. The representatives of the company stand ready and pledged to install one of these proposed 100-foot stacks immediately and believe that it can be finished in about six weeks, and when completed proposes that the State Board of Health shall inspect their operation, and if found satisfactory they will proceed to install the remaining three stacks according to the plan. Several months will be required to complete these changes, but we are assured that they will be complete before the opening of another season. In view of the fact as shown in our previous reports that this alleged nuisance at the worst has not affected more than one per cent of the population of Catskill and that the great preponderance of public opinion in the village is in favor of having no measures taken which will materially interfere with the conduct of the business which has been and still is a source of great prosperity to the community, we recommend as follows:

(1) That the company make a trial of the new 100-foot stack, the same to be inspected by this Board when completed.

(2) It is also recommended that an extension of time be granted to the company sufficient for this trial plant to be erected, and if found satisfactory that a further extension be made for a complete substitution of this plant for the present one.

In closing this report the committee would call your especial attention to the unanimity of the opinion regarding the improvement in the existing conditions since last year; while it is believed that the difficulty should be remedied it is not clear to the committee that the present condition is a nuisance and dangerous to life and health in the same degree that it was at the time of the previous investigation.

In view of the expenses already incurred by the company in the attempt to find a solution of the trouble and their willingness to carry out the suggestions in the plans which have been prepared, it is we believe fair to assume that the company is acting in good faith and will carry out the plans now suggested without any hesitation or attempt in any way to nullify your orders in the matter.

DANIEL LEWIS
OWEN CASSIDY
B. T. SMELZER

ALBANY, N. Y., *December* 6, 1900

BAXTER T. SMELZER, *Secretary State Board of Health:*

Dear Doctor—The shale brick works at Catskill report the completion of the smokestack which is to abate the smoke nuisance in connection with burning brick. This stack is 100 feet high and serves two kilns between which it is placed, taking the place of the low chimneys which have been used, that is, one for each fire or about 40 in number for the two kilns. Each kiln has some 10 fires on each side of it, which are stoked from the outside and the draft from them is into the kiln, through a conduit under the floor in which are openings and which connect with the new stack. Fresh coal is applied to each fire every half hour, three or four shovelfuls at a time, one man doing the work so that but one fire is supplied at once.

After watching the stack for an hour or two I find that for about 10 minutes after fresh coal is applied there is some black smoke given off, which soon decreases so that it becomes nearly imperceptible though not entirely so. I should say then that the smoke nuisance is in good measure relieved, at least under the conditions of quality of coal and method of applying it to-day. The improvement over the immense volume of smoke and steam pouring from the large number of small chimneys is very great.

The situation of the kilns, at the foot of a precipitous elevation 50 or 75 feet below the street which has dwellings closely along it near by, is such that the new chimney does not reach the top of many of these dwellings. They would be better protected from the smoke that is to some extent given off if the stack were 15 or 20 feet higher; the amount of smoke would likewise be lessened. It is apparently the case that consumption of smoke takes place in its transit through the long course of heated tunnel and chimney surface. It might be suggested as worth a trial the putting also in the stack a checker work of fire brick heated by an additional fire under it, for the purpose of effecting greater combustion, but doubtless a little greater elevation of the stack would accomplish more than this. The company has near by a so-called continuous kiln built in circular form, with a chimney 150 feet high which gives off no perceptible smoke. However the improvement effected by the present 100-foot stack is fairly satisfactory, and the smoke nuisance may be said to be practically abated so far as applied to two of the kilns and will be equally effective for the rest.

The dust nuisance from crushing the shale used in making the brick still exists. This shale is crushed by machinery and discharged upon a long inclined screen to sift it. This is done in a large wooden building which is kept closed on the side toward the street. An attempt has been made to retain the dust by a wooden enclosure, but ineffectively. An impalpable, light flocculent powder is given off which escapes from the building and covers everything for a considerable distance, permeates dwellings and cannot be kept out by ordinary doors and windows; it finds its way into closed closets and everywhere. This will not be abated until a hood is placed over the whole machinery and screen, connected with an exhaust fan which will draw it away where it can be caught by a fine spray of water or by some other method retained. The superintendent, Mr. Kummer, suggested that some such plan would be attempted to relieve the works of this, which is almost as much a nuisance as the noxious smoke fumes from the kilns.

Respectfully
F. C. CURTIS

CITY OF RENSSELAER

Water supply

STATE OF NEW YORK—EXECUTIVE CHAMBER, ALBANY

To the State Board of Health:

Complaint having been made by R. B. Lansing, mayor, and R. J. LeBoeuf, corporation counsel, of the existence of a public nuisance and menace to the health and comfort of the citizens of the city of Rensselaer in this state caused by the alleged impure quality of the water being furnished to that city by a corporation known as the Greenbush water works company, I therefore, in accordance with the provisions of section six of article one of the Public health law, hereby direct and require you to make an examination into the alleged nuisance and questions affecting the security of life and health in the locality aforesaid, and to report the result to me on or before the 15th day of January, 1900.

Given under my hand and the privy seal of the state at the Capitol in the city of Albany this twelfth day of December in the year of our Lord one thousand eight hundred and ninety-nine.

[SEAL] THEODORE ROOSEVELT

Attest:

WM. J. YOUNGS

Secretary to the Governor

To His Excellency, Hon. THEODORE ROOSEVELT, *Governor of the State of New York:*

The petition of the city of Rensselaer respectfully shows:

(1) That your petitioner is a domestic municipal corporation incorporated under and pursuant to chapter 359 of the laws of 1897 and acts amendatory thereof; that your petitioner as such corporation is the successor to all the rights and privileges of the town and village of Greenbush:

(2) That on or about the 27th day of December, 1886 John F. Moffett, H. C. Hodgkins, John T. Clarke, Romeyn Freeman, Frank Watts, F. O. Peck and Charles T. Moffett, made their certain application to the president and board of trustees of the village and the supervisor of the town of Greenbush pursuant to "An act in relation to the creation and formation of water works companies in towns and villages of the state of New York," passed June 12, 1873, and acts amendatory thereof, and supplemental thereto, whereby the said persons certified that it was their intention to form a water works company for the purpose of supplying pure and wholesome water to the village of Greenbush and the inhabitants thereof, pursuant to said laws, the sources of which supply were to be wells, springs, or the Hudson river; that thereafter a written instrument purporting to be a consent required by the terms of said statutes, to the formation of such company, was made and executed by certain of the trustees of the village of Greenbush, by the terms of which the said application was received and accepted, and it was consented that the persons named therein should form a company to be known as the Greenbush water works company, for the purpose of supplying pure and wholesome water to the village of Greenbush on certain terms and conditions therein specified, and the said instrument provided that said company should possess the exclusive right "to build water works in said village, to lay and maintain pipes in the streets thereof and to furnish said village and the inhabitants thereof with water for the term of twenty years from the date" thereof, which said date was the 13th day of January, 1887.

(3) That thereafter the persons named in the said application filed a certificate of incorporation in the office of the secretary of the state of New York, and claimed to be a corporation and exercise the privileges conferred upon water works companies by the terms of the laws set forth in their said application, among which privileges claimed, was the right to furnish pure and wholesome water to the inhabitants of the said village of Greenbush for drinking and other purposes; that thereafter and on the 24th day of January, 1887, and before the commencement of the construction of the plant of the said company, a contract was made between the said company and the village of Greenbush, by which it was provided, among other things, that the source of water supply for all purposes should be either from caissons and driven wells or springs at and above the upper end of the village of Bath, or from the Hudson river, but that in all cases the water was to be filtered before going into the mains, except that in cases of urgent necessity, as in case of fire, water might be pumped directly from the source of supply into the mains.

(4) That said contract provided specifically for the method of construction of the said plant and other matters, and in addition provided for the furnishing of water for the extinguishment of fires, at a rate therein stated, to be paid for such purposes alone, by the village of Greenbush; that thereafter the works of said company were constructed and water was furnished to the inhabitants of said village as private consumers for certain sums of money which were paid directly by the said consumers to the said company, and water has been since furnished under certain contracts between the company and said village for the purpose of extinguishing fires and for flushing sewers; that by the terms of all contracts entered into between the village of Greenbush and said company, it has been provided that the water which was to be furnished for the purposes specified in said contracts should be pure and wholesome, and should be filtered in such manner as to render the same pure and wholesome.

(5) That since the completion of the said water works the said company has been, and still is, furnishing to private consumers in

said village and city, water for drinking and domestic purposes, for certain private rates paid by said consumers and has been furnishing water during all the said times, and now is, for the extinguishment of fires, the flushing of the sewers and for use in the public schools and public buildings in the said village and city.

(6) That complaints have been frequently made to the common council and health officer, and board of health of the city of Rensselaer, that the water so being furnished to private consumers and the public buildings of said city was not pure and wholesome, and that the said water was the direct cause of fevers and other diseases and disorders suffered by the inhabitants of the said city.

(7) That your petitioner has caused to be made by the Bender hygienic laboratory, located at the city of Albany, N Y., a careful and thorough analysis of the water now being furnished to the said city and the inhabitants thereof; that annexed hereto and marked "Schedule A" is a copy of the report or analysis made by the said Bender hygienic laboratory, to which your petitioner begs leave to refer with the same force and effect as if the same were more particularly set forth herein.

(8) Upon information and belief, that the water now being furnished to the inhabitants of the said city is not pure and wholesome as required by law and that the said water contains bacteria far in excess of the number that should exist in pure and wholesome drinking water and contains evidence of organic contamination, all of which renders it unfit for drinking purposes and dangerous to the lives and health of the inhabitants of the said city.

(9) That complaint has been made to the officers of said company and demand made upon them to furnish a supply of pure and wholesome water to the said city, but that said company has wholly failed and neglected to provide an abundant supply of pure and wholesome water to the inhabitants of the said city for drinking and other purposes, as was and is its duty in the premises.

(10) Upon information and belief, that none of the officers of the said company are residents of the city of Rensselaer and capable of being served with process issued by the local health board of the said city, but that the said company is within the jurisdiction of the State Board of Health of the state of New York and that the water furnished by the said company to private consumers and otherwise and the methods adopted by the said company in furnishing the same detrimentally affect the security of life and health of the inhabitants and citizens of the said city of Rensselaer.

Wherefore your petitioner prays that an order may be entered herein, directing and requiring the said Board of Health to make an examination into the foregoing facts and report the results thereof to the Governor of the state of New York, within the time prescribed by the terms of such order with such other and further relief as may be just in the premises.

RANDALL J. LeBOEUF

Corporation Counsel and Attorney for the City of Rensselaer

STATE OF NEW YORK } ss.:
COUNTY OF ALBANY }

Bradford R. Lansing, being duly sworn, says that he is the mayor of the city of Rensselaer, the petitioner named herein, that he has read the foregoing petition and that the same is true to his knowledge except as to the matters therein stated upon information and belief, and as to those matters, he believes it to be true; that the reason why this verification is made by deponent and not by the said petitioner, is that the said petitioner is a domestic municipal corporation and that deponent, as aforesaid, is the mayor and one of the officers of said city.

BRADFORD R. LANSING

Mayor

Sworn to before me, this 13th day of October, 1899.

KATHARINE W. DORR

Commissioner of Deeds, Albany, N. Y.

BENDER HYGIENIC LABORATORY
ALBANY, N. Y., *October* 11, 1890

R. J. LEBOEUF, *Albany, N. Y.:*

Dear Sir—Obedient to your request we have examined the four specimens of water sent to us by the health officer of Rensselaer N. Y., and we report as follows:

Specimen No. 1—Number of colonies per centimeter: On agar 5680; on gelatine 5600; average 7140. Fermentation test: Ten tubes inoculated with one centimeter of water. Gas formation in all 10; one showed 45%; two showed 35%; two showed 30%; four showed 25%; and one showed 20%. Acid reaction in all tubes. Qualitative examination showed, besides the ordinary water organisms, a bacillus resembling the colon bacillus in all respects, and the proteus vulgaris.

Specimen No. 2—Number of colonies per centimeter: On agar 1640; on gelatine 1040; average 1340. Fermentation test: Nine tubes inoculated with one centimeter of water. Gas formation in all nine; one showed 80%; one showed 75%; one showed 45%; one showed 30%; two showed 25%; one showed 20%; one showed 15%. Acid reaction in all the tubes. Qualitative examination showed besides the ordinary water organisms the colonial bacillus.

Specimen No. 3—Number of colonies per centimeter: On agar 320; on gelatine 6740; average 3530. Fermentation test: Ten tubes were inoculated with one centimeter of water. Gas formation in all 10; one showed 45%; one showed 40%; five showed 30%; one showed 25%; one showed 15%; and one showed 5%. Acid reaction in all the tubes. Qualitative examination showed beside the ordinary water organisms the colon bacillus.

Specimen No. 4—Number of colonies per centimeter: On agar 20,160; on gelatine 21,000; average 20580. Fermentation test: Ten tubes inoculated with one centimeter of water each. Gas formation in all 10; three showed 100%; two showed 75%; two showed 60%; two showed 50%; and one showed 40%. Acid reaction in all tubes. Qualitative examination showed besides the ordinary water organisms the colon bacillus.

CONCLUSIONS

From a bacteriological standpoint none of these samples fulfill the usual requirements for a good drinking water. In the first place in all of the samples the number of bacteria is far in excess of the number that should exist in good drinking water. The outside limit in a first class drinking water would be 200 bacteria to the centimeter. In the second place the formation of gas in all of the specimens indicates bad water. And in the third place the presence of the colon bacillus in a drinking water is generally regarded as evidence of organic contamination. Because of the above reasons we are constrained to condemn the above water as utterly unfit for drinking purposes.

Respectfully submitted.

BENDER HYGIENIC LABORATORY
ARTHUR W. ELTING

ALBANY, *February* 15, 1900

HON. THEODORE ROOSEVELT, *Governor of the State of New York, Albany, N. Y.:*

Dear Sir—I have the honor to transmit herewith the report of this Board together with the testimony taken in the matter of their investigation as to the alleged pollution and contamination of the public water supply of the city of Rensselaer.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *February* 14, 1900

IN THE MATTER OF THE ALLEGED NUISANCE AFFECTING THE SECURITY OF LIFE AND HEALTH IN THE CITY OF RENSSELAER BY THE POLLUTION AND CONTAMINATION OF THE WATER SUPPLY THEREOF.

To the Hon. THEODORE ROOSEVELT, *Governor of the State of New York:*

Sir—Pursuant to an order made by the Governor of the state of New York, dated December 13, 1899, and based upon a petition presented to him by the mayor of the city of Rensselaer, the State Board of Health of the state of New York, after due notice of a hearing to be held by said Board had been given to the complainant and to the officers of the Greenbush water works company, convened at the capitol at the city of Albany, December 28, 1899, and made an examination in accordance with the provisions of section 6, article 1 of the Public health law, in and to the alleged nuisance and conditions affecting the security of life and health in the said city by reason of the contamination of the water supplied to the inhabitants of said city by the Greenbush water works company.

At said hearing the city of Rensselaer was represented by Randall J. LeBoeuf, corporation counsel, and the Greenbush water works company by P. C. Dugan, attorney, and the officers of said company. That the said Board was, from time to time thereafter, attended by the parties and their attorney, and said Board heard their proofs and allegations and report the following findings of fact:

First—That the city of Rensselaer is a domestic municipal corporation, incorporated pursuant to chapter 359 of the laws of 1897 and acts amendatory thereof, and succeeds as such to all the rights, privileges and liabilities of the town and village of Greenbush.

Second—That on or about December 7, 1886, certain persons claiming to be proposed incorporators of the Greenbush water works company filed a certificate with the president and board of trustees of the village and the supervisor of the town of Greenbush of their intention to form a water works company for the purpose of supplying pure and wholesome water to the village of Greenbush and the inhabitants thereof pursuant to law.

Third—That thereafter and in the month of January, 1887, certain papers were signed by some of the trustees and other officials of the village and town of Greenbush by which the said company claimed the right to supply the inhabitants of the said town and village with pure and wholesome water for drinking and other purposes for the period of 20 years from said date.

Fourth—That thereafter a certificate of incorporation of the said company was filed with the secretary of state of the state of New York, and on the 24th day of January, 1887, and before the commencement of the construction of any works of said company, a contract was made between the said company and the village of Greenbush by which it was provided among other things that the source of water supply for all purposes should be from caissons and driven wells or springs at and above the upper end of the village of Bath or from the Hudson river, but that in all cases the water was to be filtered before going into the mains except that in case of urgent necessity, as in case of fire, water might be pumped directly from the sources of supply into the mains.

Fifth—That for a period of at least four years last past the water furnished by said company to the said village and city and the inhabitants thereof has not been filtered, but that the same or a greater part thereof has been taken directly from the Hudson river without filtration, and that the said water so furnished during the said period of time has not been pure or wholesome, but has been impure, contaminated with sewage matter, and detrimental to the lives and health of the inhabitants of said village and city.

Sixth—That prior to the establishment of said water works company's system in the said village of Greenbush, the sources of water supply therein were from wells and springs, and that during the said times the reported mortality from typhoid fever and other diseases attributed to contamination of water supply was comparatively small; but since the establishment of the said water works company's system and the supplying of the inhabitants thereof with the water furnished by said company, the death rate in said city from typhoid fever has largely increased.

Seventh—That the water now being supplied to the city of Rensselaer and the inhabitants thereof by the Greenbush water works company is contaminated, impure and unfit to drink, and detrimentally affects the security of the life and health of the inhabitants of said city, and constitutes a public nuisance, injurious to public health.

The Board of Health would therefore recommend that an order be entered herein declaring the water now being furnished by said Greenbush water works company to constitute a nuisance injurious to the public health of the inhabitants of said city and directing and requiring the said Greenbush water works company to cease furnishing water of the character and quality now furnished to the said city and the inhabitants thereof, within six months from the date hereof, unless before that date said Greenbush water works company shall obtain water from a different supply and of a purer character, or filter the water taken from the river in a manner to be approved by the State Board of Health.

All of which is most respectfully submitted, together with the testimony taken.

OWEN CASSIDY
EDWARD A. BOND

JULY 9, 1900

DANIEL LEWIS, M. D., *President New York State Board of Health:*

Dear Sir—The New York State Board of Health, through the Governor of New York, having ordered the Greenbush water works company of Rensselaer to cease furnishing water of the character and quality now furnished, and remedy the difficulties of its present system either by obtaining a different supply and of a purer character or by filtering the water taken from the river in a manner to be approved by the New York State Board of Health (see recommendation of the Board February 14, 1900), and those who have taken this matter in charge for the company having made a careful study of the water problem for Rensselaer, the surrounding watersheds, possibilities of contamination, distance, taste and quantity, and after such study having come to the conclusion that the best solution of the problem is a filter which might meet with your approval, I beg to address your honorable body to ascertain if a certain form of filter which has been recommended to us and has seemed to us proper and desirable will also meet with your sanction.

The New York filter manufacturing company are prepared to make a contract with us for the installation of a 3,000,000-gallon plant which shall be subject to the following guarantees:

(1) The water shall be bright, clear, practically free from turbidity, matters in suspension and color.

(2) Where the number of bacteria in the unfiltered water is 3000 or more, there shall be a bacterial reduction in the filtered water of not less than 97 per cent; but where the number of bacteria in the unfiltered water is less than 3000 the average number of bacteria in the filtered water shall not exceed 100.

(3) The filtered water shall show no trace of alumina in excess of that of the unfiltered water.

I append herewith a description of the filters with full specifications of their construction.

The form of house which we should erect would be a good, substantial brick structure, with gravel or slate roof with iron truss; building to be large enough to accommodate the proposed six filters and also sufficient space to permit an enlargement of the plant in case the demand should grow.

Awaiting the opinion of your honorable Board in regard to this proposition, and desiring to know specifically whether it has your sanction and approval,

I am, dear sir,

Most respectfully yours,

CHAS. F. FLAGG

Secretary

SPECIFICATIONS

15-FOOT JEWELL GRAVITY FILTERS

The plant shall consist of six (6) Jewell gravity filters connected up in battery, each filter being capable of furnishing 500,000 gallons of water per day.

TANKS

Each tank shall be 16 feet 6 inches outside diameter by 16 feet high outside; and each shall contain an inside tank 15 feet inside diameter by 6 feet high. The staves of each tank shall be 3 inches in thickness, made to dress 2⅞ inches. Each tank shall be constructed of seasoned Louisiana cypress, free from large knots and sap. Each tank shall be bound by not less than one 4-inch hoop and nine 3-inch hoops, and the inside tank shall be bound by three 3-inch hoops. All hoops shall be provided with double draw bolts.

Filtering Material

The filtering material shall consist of 4 feet of carefully selected screened sand, having an effective diameter of from .36 to .4 of a millimetre.

Interior of Filters

The inside tank shall be supported by eight 8-inch by 8-inch Norway pine posts dressed, and shall be supported by four 8-inch by 10-inch dressed Norway pine girders.

The inside tank shall be attached to the outside tank by 3-inch by 4½-inch dressed cypress segments throughout the entire circumference. There shall be two 6-inch by 10-inch dressed Norway pine beams to support the agitators, properly supported by brackets, the brackets to be bolted to the tank by ¾-inch by 5-inch bolts.

Agitators

The agitators shall be of the Jewell patent reversible type, similar to plate 1 of atlas. The gears and pinions shall be machine cut.

Screens

There shall be 702 screens to each filter. All screens shall be made of gun metal, provided with deflecting plates, and shall be fitted with aluminum or phosphor-bronze perforated screen metal, held by copper rivets.

Manifolds and Branch Pipes

All manifolds and branch pipes shall be made of cast iron securely attached.

VALVES

There shall be two (2) sewer valves, one (1) inlet valve, one (1) discharge valve, one (1) rewash valve and one (1) wash valve. There shall also be one (1) copper inlet float tank with butterfly valve and one (1) Western controller, which shall regulate the discharge at all times to within two (2) per cent.

TOWN OF GREENPORT

North bay nuisance

STATE OF NEW YORK—EXECUTIVE CHAMBER

ALBANY, *May* 1, 1900

To the Honorable the State Board of Health, Albany, N. Y.:

Gentlemen—The inclosed petition from the local board of health of the town of Greenport in Columbia county is herewith submitted to your honorable body, and the Governor requests that pursuant to the provisions of section six of the Public health law, you direct that examination be made, and speedily, into the matter complained of, and that you report your conclusions to him at as early a date as may be practicable.

Very respectfully

WM. J. YOUNGS
Secretary to the Governor

To His Excellency THEODORE ROOSEVELT, *Governor of the State of New York:*

We, the undersigned members of and constituting the local board of health of the town of Greenport, Columbia county, N. Y., do respectfully submit that complaint in writing has been made to our board by S. T. DuBois, F. W. and G. C. Bartlett, residents of said town of Greenport, residing and owning real estate adjacent to the North bay (so called), situated partly in the town of Greenport and partly in the city of Hudson, N. Y.; that said North bay, particularly the upper or northerly part thereof, is in an unsanitary condition, detrimental to the public health and affecting the security of life and health in the locality thereof.

And we do further submit the report of Professor Landreth upon the unsanitary condition of the North bay, made to the State Board of Health in August, 1897, of which the following is a copy:

"SCHENECTADY, N. Y., *August* 18, 1897

"Hon. C. W. ADAMS, *Chairman Drainage Committee, State Board of Health, Albany, N. Y.:*

"Dear Sir—In the matter of the complaint filed with the State Board of Health on July 13th signed by Samuel T. DuBois, F. W. Bartlett and others concerning the defective drainage and consequent unhealthy condition of the North bay adjoining the city of Hudson on the north, which complaint was referred to me on the 10th of August, I beg leave to report that I visited the locality on the 13th instant and found the following conditions to exist:

"North bay is one of the numerous bodies of shallow water cut off from the Hudson river by the N. Y. C. & H. R. R. R. embankment; the length of the bay is approximately two miles, and the width varies from 100 to 1000 feet. In the absence of any map of the bay and of time to make a survey before this report is needed, the accompanying free-hand sketch of the locality is appended as roughly showing the relative positions. The range of tide in the river at this point is approximately three feet; at high tide the water stands about three or four feet deep in the bay; at low tide less than one foot deep, except in the channels, and some portions of the bottom are entirely exposed. There are now three culverts by which the tide ebbs and flows in the bay by giving it connection with the river outside.

"These culverts are ample in area of water-way to permit the bay to fill at flood tide before the tide turns but their location is such as to contribute largely to the present very bad condition of the bay. These culverts are all in the southern half of the length of the bay, one being at the extreme southern end, and the most northerly one, as well as the intermediate one, being near the middle of the length of the bay, leaving the northern half of the bay unprovided with any outlet.

"The free circulation of water entering the bay is impeded by the dense growth of flags, rushes, eel-grass, and other aquatic vegetation with which the bay is filled. The N. Y. C. & H. R. R. R. tracks were originally carried along the bay on a trestle, but this was filled in some 15 or 20 years ago, and as a consequence the silting up of the bay has been accelerated. This bay in common with several others along the river has reached that point in the process of filling up where from the shallowness of the water and the resulting variety and volume of vegetation developed, miasmatic and even malarial influences are to be expected. To add to the undesirable conditions, the outlet of the trunk sewer from the northern half of the city of Hudson empties the sewerage of 5000 people into the bay at the extreme southern end, and the outlet of the trunk sewer from the southern half of the city discharges the other half of the city's sewage into the Hudson river about 1000 feet south of the southern culvert and close to the shore line, so that at flood tide when the river tide is running north, this sewage from the southern outlet is carried along the shore line and into the bay through both the southern culvert and the middle one.

"In addition, garbage, dead animals, and floating materials thrown into the river on the up tide are carried into the bay and with the solid matter from the sewage are mainly entrained by the vegetation and so do not come out with the ebb. The circulation in the bay being reversed at every half tide, the fresh river-water entering at flood does not penetrate to the shores but pushes the old water in the bay back on the shores and stagnation is encouraged. This is especially the case in the northern half of the bay, though the whole bay, except near the culverts and in the channels, is in a very unhealthy condition and certainly demands correction. The time available is too short to formulate recommendations in detail as to the proper remedy, but it is quite evident that the remedy should include (1) the exclusion of the sewage which enters through the culverts; (2) the rapid discharge from the bay of the sewage from the northern outlet without allowing it to spread over the bay; (3) the frequent change of the water in the bay in place of the changing of only that lying in the channels and near the cluverts; this latter to be accomplished by changing the present oscillatory movement of the water in the bay into a progressive one, interrupted of course but not reversed at every half tide.

"These objects can be accomplished by a system of simple swinging tide-gates attached to the culverts and the placing of another large culvert at the extreme north end of the bay; the first and second culverts should have tide-gates opening *outward* but not inward, while the third culvert and the new one, the fourth, should open only *inward* and not outward. Further study of the matter including a fuller examination of the tides and currents than was possible on one half tide, may show the necessity of closing the third culvert entirely or of moving it further north and probably near the northern end; if closed entirely, then the action would be as follows: At flood tide the water would enter the bay by the northern culvert only (No. 4), at ebb the water would leave the bay by the two southern culverts (No. 1) and (No. 2), thus sweeping out the sewage delivered from the northern sewer outlet, to facilitate which this outlet should be extended by the city through the street embankment which has been thrown across the southern end of the bay. As the culvert admitting water to the bay would thus be removed to over two miles from the nearest sewer outlet into the river, but little sewage would be taken into the bay from the river; and as the direction of tidal motion in the bay would always be southerly and never reversed but only interrupted at high and at low tide, there would follow practically a complete change of water in the bay at every tide, since the tidal volume is several times that of the amount of water in the bay at low tide. There are of course numerous features to be studied in detail which would add to the above outline, and possibly in some particulars modify it, but there can hardly be a question, either as to the general objects to be reached, or as to the feasibility of the above general plan for their accomplishment.

"The matter is of somewhat more than local interest; there are numerous bays along the Hudson, caused as this one has been, by the cutting off from free circulation large pieces of water-surface; as in other similar cases these bays are passing through progressive stages in the process of filling up, through the agency of silting, of accumulation of the products of decayed vegetation, and possibly by a slow progressive slight lowering of the river surface; the ultimate result in all these cases will be land of a very level surface, but slightly above the level of the river; before this distant stage is reached however, there will be many years of bay, swamp, and marsh period, during which stagnation of the water of the marshes is certain to follow, unless the present conditions shall be artificially changed. The best manner of disturbing these conditions so as to prevent unhealthful conditions during this period of filing up and also of hastening the rate of filling up, will apparently soon be a question to claim the attention of the State Board of Health, and it would appear worthy of consideration that the present example, if tried as proposed or by other plan would constitute valuable experience for future use when the general question of treating these bays shall demand action.

"It is proper to say in addition to what was said in the description of the local conditons, that the land on which the bay lies is private property, as indicated on the sketch, the land titles going to river channel; at the same time, the present unsanitary conditions have been brought about by the action of two corporations, the railroad company and the city of Hudson, the private owners being in no way responsible for the present conditions, as it appears to me; and the effect of these conditions as well as the effect of any improvement of them, are matters of public importance. I beg therefore to recommend that the plan indicated in outline above be developed for further consideration and action by the State Board of Health.

"I am, dear sir,

"Yours very truly

"OLIN H. LANDRETH"

We therefore pray and request that you cause the State Board of Health, by virture of the power vested in you by section 6 of the Public health law of our state, to make an examination into the condition of said North bay, and to investigate the matter, and if upon such investigation it is found that the unsanitary conditions still exist, that you take such action as is necessary to cause their abatement.

Dated at the town of Greenport, N. Y.

J. A. HALLENBECK
Supervisor and chairman
J. A. HALLENBECK
WESSEL TEN BROECK
ROBERT WILSON
FRANK HALLENBECK
Justices of the peace
WILLIAM H. SHELDON
Town clerk
FRANK T. COCHRAN, M. D.
Health officer

ALBANY, *May* 4, 1900

HON. THEODORE ROOSEVELT, *Governor of the State of New York Albany, N. Y.:*

Dear Sir—I have the honor to acknowledge the receipt of your communication of the 1st instant enclosing a petition from the board of health of the town of Greenport, Columbia county, in the matter of an alleged nuisance caused by the unsanitary condition of what is known as the North bay, and directing that an investigation be made by this Board, reporting the result to you.

In reply you are informed that a meeting of this Board will be held on the 11th instant at which time arrangements will be made to investigate the complaint.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *November* 7, 1900

HON. MARK DUNTZ, *Attorney for the Board of Health, Town of Greenport, Hudson, N. Y.:*

Dear Sir—At a meeting of this Board, held September 20, 1900, the following agreement entered into by the board of health of the town of Greenport and the New York Central and Hudson river railroad company, was approved:

SEPTEMBER 10, 1900

IN THE MATTER OF AN ALLEGED NUISANCE AFFECTING THE SECURITY OF LIFE AND HEALTH IN THE TOWN OF GREENPORT, COLUMBIA COUNTY, CAUSED BY THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY.

To the Hon. OWEN CASSIDY, *member of the Committee of the State Board of Health appointed to conduct an investigation in the above entitled matter:*

Dear Sir—The undersigned parties, appearing upon investigation of the above entitled matter, beg to inform you that they have, since the last hearing therein, had several conferences in the matter of improving the existing situation at North bay, and, as the result of such conferences have reached the conclusion that the placing of two cast-iron pipes, each of said pipe to be 60 inches in diameter, at some point in the northern portion of the bay, north of bridge No. 303, to be subsequently agreed upon between Dr. Frank T. Cochran, health officer of the town of Greenport, and a representative of the New York Central and Hudson river railroad company, will have a tendency to remedy the existing difficulty.

Therefore, we, the undersigned, jointly request that such pipes as have been indicated be put in north of bridge No. 303, at the point to be agreed upon as aforesaid, and it is also mutually understood and agreed that in the event said pipes prove insufficient in number to remedy the said existing difficulty, additional pipes will be constructed in the northerly portion of the bay by the New York Central and Hudson river railroad company upon recommendation of the said Board of Health.

Respectfully submitted.

BOARD OF HEALTH OF TOWN OF GREENPORT
By FRANK T. COCHRAN, *Health officer*
J. C. RIGHTMYER, *President*
MARK DUNTZ, *Attorney for board*
N. Y. C. & H. R. R. R. CO., N. Y.
By WM. J. WILGUS, *Chief engineer*

I hereby approve of the adjustment and agreement made by and between the parties hereto subscribed.

OWEN CASSIDY

The above agreement having been submitted to the Governor, his approval of same is as follows:

STATE OF NEW YORK—EXECUTIVE CHAMBER

ALBANY, *October* 22, 1900

I hereby approve the above agreement as made between the parties thereto and direct that proceedings be had to abate the nuisance in accordance with the suggestion of the State Board of Health herein.

THEODORE ROOSEVELT
Governor of the State of New York

Very respectfully
BAXTER T. SMELZER
Secretary

Albany, *November* 7, 1900

Samuel E. Williamson, Esq., *Counsel to New York Central and Hudson River Railroad Company, Grand Central Station, New York City:*

Dear Sir—At a meeting of this Board, held September 20, 1900, the following agreement entered into by the board of health of the town of Greenport and the New York Central and Hudson river railroad company was approved:

September 10, 1900

IN THE MATTER OF AN ALLEGED NUISANCE AFFECTING THE SECURITY OF LIFE AND HEALTH IN THE TOWN OF GREENPORT, COLUMBIA COUNTY, CAUSED BY THE NEW YORK CENTRAL AND HUDSON RIVER RAILROAD COMPANY.

To the Hon. Owen Cassidy, *Member of the Committee of the State Board of Health appointed to conduct an investigation in the above entitled matter:*

Dear Sir—The undersigned parties, appearing upon investigation of the above entitled matter, beg to inform you that they have, since the last hearing therein, had several conferences in the matter of improving the existing situation at North bay, and, as the result of such conferences have reached the conclusion that the placing of two cast-iron pipes, each of said pipes to be 60 inches in diameter, at some point in the northern portion of the bay, north of bridge No. 303, to be subsequently agreed upon between Dr. Frank T. Cochran, health officer of the town of

Greenport, and a representative of the New York Central and Hudson river railroad company, will have a tendency to remedy the existing difficulty.

Therefore, we, the undersigned, jointly request that such pipes as have been indicated be put in north of bridge No. 303, at the point to be agreed upon as aforesaid, and it is also mutually understood and agreed that in the event said pipes prove insufficient in number to remedy the said existing difficulty, additional pipes will be constructed in the northerly portion of the bay by the New York Central and Hudson river railroad company upon recommendation of the said Board of Health.

Respectfully submitted.

BOARD OF HEALTH OF TOWN OF GREENPORT
By FRANK T. COCHRAN, *Health officer*
J. C. RIGHTMYER, *President*
MARK DUNTZ, *Attorney for board*
N. Y. C. & H. R. R. CO., N. Y.
By WM. J. WILGUS, *Chief engineer*

I hereby approve of the adjustment and agreement made by and between the parties hereto subscribed.

OWEN CASSIDY

The above agreement having been submitted to the Governor, his approval of same is as follows:

STATE OF NEW YORK—EXECUTIVE CHAMBER
ALBANY, *October* 22, 1900

I hereby approve the above agreement as made between the parties thereto and direct that proceedings be had to abate the nuisance in accordance with the suggestion of the State Board of Health herein.

THEODORE ROOSEVELT
Governor of the State of New York

Very Respectfully
BAXTER T. SMELZER
Secretary

GREENWOOD LAKE

STATE OF NEW YORK—EXECUTIVE CHAMBER

ALBANY, *November* 19, 1900

To the State Board of Health, Albany, N. Y.:

Gentlemen—Inclosed please find a communication from the Greenwood lake association making complaint against an organization which appears to be in the state of New Jersey. You are respectfully requested to make such inquiry in the matter as may be within your scope, and to inform the governor if he has any jurisdiction in the matter, and at your early convenience.

Very respectfully
WM. J. YOUNGS
Secretary to the Governor

GREENWOOD LAKE, *November* 16, 1900

Hon. THEODORE ROOSEVELT, *Governor of the State of New York*:

Dear Sir—We desire to call your official attention to a complaint forwarded to the Board of Health of the State of New York, relative to the condition of affairs existing at Greenwood lake, Orange county, N. Y., in consequence of the continued drawing of water from that lake by the lessors of the Morris canal and banking company of the state of New Jersey, to supply in part drinking water to cities and municipalities in the state of New Jersey.

This drawing down of this lake endangers the life and health of residents of the state of New York, and we request the exercise of the rightful power of the state in the protection of the health of its citizens.

Respectfully
GREENWOOD LAKE ASSOCIATION
JOHN C. LLOYD, *Secretary*

GREENWOOD LAKE, N. Y., *November* 3, 1900

To the Honorable Board of Health, Township of Warwick, Orange Co., N. Y.:

Gentlemen—This association is composed of the owners of nearly all the property embraced in the Greenwood Lake section of your township.

We hereby call your official attention to the conditions existing at Greenwood Lake at the present time:

The water of the lake has been drawn down some eight feet, and, as a result, malarial troubles are becoming serious, and the lives and health of the inhabitants of the region have been and are endangered.

We request your *immediate official investigation* of this matter, and ask the protection of your lawful authority for the lives and health of the citizens of this vicinity.

We respectfully call your attention to the following facts bearing on the question:

The Morris canal and banking company of the state of New Jersey acquired the right to use the waters of Greenwood lake, lying in the state of New York, by a grant from the canal board of the state of New York, issued in 1835 and 1839; this grant specifically limited the use of these waters to a canal for commercial purposes.

These waters of the state of New York are now drawn off and used by the lessees of the Morris canal and banking company, under an agreement with the East Jersey water company of New Jersey and the Society of useful arts and manufactures, of Paterson, N. J., to supply, in part, drinking water to the cities of Paterson, Montclair, Jersey City and other towns and cities in the state of New Jersey.

We call your attention to these facts, so that should your authority be insufficient to protect the lives and health of the citizens under your care, you may properly call upon the authorities of the state of New York to protect its citizens against *the use of its grants* in a way to endanger and injure the health of the people of the state.

We respectfully urge an immediate investigation and prompt action.

Most respectfully yours
GREENWOOD LAKE ASSOCIATION
JOHN C. LLOYD, *Secretary*

ALBANY, *November* 20, 1900

Prof. OLIN H. LANDRETH, *Consulting engineer, State Board of Health, Schenectady, N. Y.:*

Dear Sir—I enclose herewith for your information, copy of a communication received from the secretary to the Governor, also a copy of the communication from John C. Lloyd, secretary, Greenwood Lake association.

In compliance with instructions given verbally to you, it is directed that you proceed to Greenwood Lake, Orange county, for the purpose of investigating the complaint of the Greenwood Lake association, as indicated in Mr. Youngs' letter.

It is requested that your report upon the matter to this Board be not delayed later than November 26th.

Very respectfully
BAXTER T. SMELZER
Secretary

SCHENECTADY, N. Y., *November* 26, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Agreeable to your letter of the 20th instant directing me to investigate the complaint of the Greenwood Lake association concerning the continued drawing down of the waters of the Greenwood lake by the Morris canal and banking company of New Jersey and requesting me to report on the matter not later than the 26th instant, I beg to submit the following partial report on the investigation:

As the copy of the complaint was not submitted with your letter and on inquiry was not available at your office, I went on the evening of the 22d to New York to consult the secretary of the Greenwood lake association, John C. Lloyd, of 19 Old Slip, and learn from him the particulars of the conditions complained of. After securing all possible information from Mr. Lloyd and other gentlemen in New York, I went to the Greenwood lake vicinity, spending the 23d and 24th instants on the investigation, returning home yesterday morning (Sunday).

Greenwood lake is a small fresh-water lake lying about one-half in Orange county, N. Y., and the remaining portion in Passaic county, N. J., and is about 45 miles distant from New York city via the New York & Greenwood lake railroad, a branch of the Erie railway, having its northern terminus on the eastern shore of the lake. The lake is six miles in length northeasterly and southwesterly, and varies from one-half to three-fourths mile in width. The lake surface is about 630 feet above sea level, with abrupt rocky shores on each side and fertile valleys at the ends of the lake. The valley at the north or New York end of the lake is the location of the unincorporated village of Greenwood Lake lying in the township of Warwick, Orange county. The village has a permanent population of 200 to 300 people and a summer population of three or four times that number, as the natural beauty of the mountain and lake scenery make it an attractive location for summer cottages. These cottages, not only in the village at the head of the lake but along the shores, particularly the western shore, are owned and occupied in summer principally by residents of the city of New York, and a number of summer hotels and private boarding houses are maintained by the same kind of patronage. The village and the summer cottages and hotels on the shores of the lake enjoy transportation facilities of the railroad and of a steamer run by the railroad company to connect with its trains at the station on the east shore. The summer season ends about the middle of September. The lake in its present general condition is in part an artificial body of water. Some time about 1835 or 1840 a dam was built across the outlet of the lake by the Morris canal and banking company, the corporation which had then recently built and which still owns and operates the Morris canal, sometimes called the Morris and Essex canal. The dam raised the original level of the lake 10 feet, and was built for the purpose of storing water for the Pompton level of the canal.

The canal company had previously acquired certain authority to build this dam from the state of New York, and also the right of condemnation of private rights on the shores of the lake, the precise nature of which authority in detail I am now investigating, but have not yet completed, as it involves an examination of the public records at several places, both in this state and in New Jersey. I also find a ground for believing that the level of the lake at the time just prior to the building of the Morris canal dam may have been an artificial level and not the original level. These points are further complicated by the fact that there is good grounds for believing, though I have not yet been able to collect positive proof, that the waters of the lake are being drawn off for other purposes than that for which the Morris canal company acquired authority and rights.

I am informed that it has been the custom for the canal company to draw the lake down somewhat every year, but that beginning some six or seven years ago the lake level was lowered about seven or eight feet and the same has been done this fall since the close of the summer hotel season, and that during the intervening seasons it has been drawn down from three to four feet. At the time of my examination it was seven feet below its normal level and eight feet below its high-water mark.

This reduction of the lake level has left exposed a large tract of land surrounding the village of Greenwood Lake, and has brought about, or at least there now exists there, decidedly malarial conditions. I interviewed a number of responsible persons who reported to me at least 15 cases of well-defined cases of malaria or "chills and fever" as they usually styled it. I have the names of these cases and of their attending physicians where medical services were secured. All these have occurred since the lake was drawn down and the cases or occurrences of malaria are confined to those years and to those times of the year when the lake is down. These cases of malaria which have occurred during recent years are beginning to have a detrimental effect upon the reputation of the place as a summer resort and to injuriously affect the market and rental value of property. I have some memoranda of specific cases coming under this head for use if desired.

Touching the relation, if any, between the drawing down of the lake and the occurrence of malaria in the village, I may say:

(1) The physical conditions which I found to exist on the shore of the lake and particularly in the extensive areas exposed to the air by the lowering of water-level, are such as usually accompany malarial conditions;

(2) Without exception, in answer to my questions as to the relative prevalence of malaria this season and former seasons, the answers from numerous individuals who had lived in the vicinity for several years were that there had been more malaria this fall than during any fall since the year, some six or seven years ago, when the lake was previously drawn down to its unusual level, and that the malaria increased with the depth to which the lake was drawn down;

(3) In answer to my inquiries on the point, the only two storekeepers in the village stated that they had sold this fall since the middle of September at least twice as much quinine as in any previous two months during the past five years. I am aware that this is not absolute proof, but it is presumptive evidence on the influence which the level of the lake bears on the health of the village.

On making inquiries of the secretary of the board of health of the town of Warwick, he stated that the board had received but one complaint concerning the lake level, being the one from the Greenwood association, which complaint his board had referred to the State Board of Health, as the local board considered that, as it had no authority over the Morris canal company, there was no action to be taken. The local board has not therefore declared the conditions to be detrimental to health, and in fact has not examined the locality, as the meeting at which the complaint was received and referred was held over the mountain at Warwick, and the health officer, Dr. Cummings, who is somewhat familiar with the village of Greenwood Lake, was not at the meeting.

After having completed the examination of the sanitary conditions and attendant circumstances at the upper or New York end of the lake, I devoted nearly all of Saturday, the 24th, to the work of discovering and verifying information bearing on the matter of the drawing down of the lake. A few of the outline facts have been stated in the above report, but the great mass of facts bearing on the matter still need further investigation to properly connect and establish them, and I should have done this before submitting this report but for the fact that you desired me to submit the report to-day.

I have therefore in conclusion to summarize as follows:

(1) My examinations of the lake and especially at Greenwood Lake village lead me to believe that the health of the citizens of the village is being impaired by the undue drawing down of the level of Greenwood lake.

(2) Further time is needed to investigate the facts bearing on the use of the waters withdrawn from the lake and the right to such use.

(3) These facts when collected will then need to be submitted to some legal authority for an opinion as to the remedy open to the local or State Board in the matter.

If you conclude to have the investigation into the facts continued, you can so inform me; otherwise I shall do nothing further.

I am, dear sir, very truly yours

OLIN H. LANDRETH
Consulting engineer

WARWICK, N. Y., *December* 11, 1900

The State Board of Health, Albany, N. Y.:

Gentlemen—At the request of Engineer Landreth of the State Board of Health I investigated the condition of the health of the residents of Greenwood Lake from August 1st to date, particularly in reference to disease resulting from the low condition of the water of the lake, the east and west arms of the lake having been left dry. I find that the lake has been drawn down about 10 feet, leaving the whole upper end dry from one-half to three-quarters of a mile. The bed of this portion of the lake is mucky and filled with a growth of grass and weeds, and the vegetable matter, after being uncovered and exposed to the sun, decayed and the stench was at times considerable. While local physicians have done less work at the lake this summer than usual, chills and fever have been prevalent. I can get no history of remittent, typhoid, or any continued fevers. I attach hereto the affidavits of the residents of the lake who appeared before me and gave their evidence as to the unhealthy condition.

Truly yours
J. S. CUMMINGS, M. D.
Health officer town of Warwick, N. Y.

JOHN H. QUICK appeared before the health officers and stated as follows: I live at the Dewey hotel at Greenwood Lake, it is situated about 1000 feet from the east arm of Greenwood lake. I have been sick this fall, in September, with the chills and fever. I have been at the lake about one and a half years. Never had chills and fever before. I am 66 years of age.

his
JOHN H. X QUICK
mark

Sworn to before me November 28, 1900.

G. W. MCELROY
Notary public

COE H. TEN EYCK appeared before the health officer and stated as follows: I have lived at Greenwood Lake 20 years. Lived at the Valley house 14 years. Valley house is situated on the east arm of Greenwood lake. During the time from August 1, 1900, myself and members of my family have been sick with chills and fever. We were not attended by any doctor, but took quinine and castor oil. Myself and family are in good health generally, and never had chills and fever in our family except during the time the lake has been drawn down.

C. H. TEN EYCK

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

ALLEN W. WINTERS appeared before the health officer and stated as follows: I live at Greenwood Lake, and myself and family have been sick this fall. About four weeks ago I consulted a physician, Dr. Nugent, at Unionville, N. Y., and he said myself and family were suffereing from malarial trouble. I live between the two arms of the lake, nearer the west arm. I take quinine nearly all the time and other members of my house take it. We are troubled considerably with sore throat. I have lived at Greenwood Lake for the past six years and have been troubled with malaria more or less during that time, but have taken more quinine this fall than usual. I am the principal of the school at Greenwood Lake and this fall I have made inquiry among the pupils as to their health and found that about 85 per cent of the pupils have been affected this fall with malaria troubles. There are about 100 children in the school.

A. W. WINTERS

Sworn to before me November 28, 1900.

G. W. McELROY,
Notary public

SAMUEL H. COURTER appeared before the health officer and stated a follows: I live at Greenwood Lake, at Sterley Forrest. We never had as much sickness in our family while we have been at the lake as we have this fall. I have been at the lake for two years. My wife has been sick since September last. Dr. Brader of Warwick has attended her. I believe her to be suffering from malaria. Dr. Myers of Paterson saw my wife the other day and said he believed she was suffering from malaria. I have a man in my employ who has been suffering from malaria this fall and he said he had never had that disease before. My little girl has not been well this fall, she seems to be tired all the time and lays down frequently during the day, has no ambition. This did not happen in my family last year. I have heard complaints from neighbors who have suffered this fall from malarial troubles. There is hardly a man about my neighborhood but what has been complaining this fall, and from the symptoms they tell me I am led to believe it is malaria. Sometimes the odor about my place would be stifling, especially in the morning. This state of affairs is not noticeable when the lake is at its normal height.

S. H. COURTER

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

CHRISTOPHER PURSE appeared before the health officer and testified as follows: I have lived at Greenwood Lake for the past 30 years. My house is on the west arm of Greenwood lake. During the month of September, 1900, my wife died from malaria contracted at that time. Dr. Hall of Monroe attended her during her sickness. She had heart trouble also, but my belief is that malaria hastened her death. She had never been troubled with malaria until this fall. The water has been drawn down further this fall than I have ever seen it since 1870. There was considerable smell about the part of the lake drawn down by decaying vegetable matter. I have been the pilot of the Montclair boat for 23 years and know the people, many of them, who frequent the lake, and have heard many of them say that they were going to leave the lake because the lake had been drawn down and they were suffering from malaria owing to the decaying vegetable matter occasioned by the drawing off of said water.

I have complained more personally from malaria this fall and have taken quinine and rye whiskey much more than usual this year. Keep it in the house all the while.

his
CHRISTOPHER X PURSE
mark

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

GEORGE W. TEN EYCK, JR., appeared before the health officer and testified as follows: I have lived at Greenwood Lake for the past 11 years. During all that time the health of myself and family has been good excepting six years ago when the lake was drawn down. At that time we had malaria in my family. Since that time we have not had malaria in my family until this fall. My wife and little boy have been sick with malaria this fall and have been treated by Dr. Dowling, who was a practising physician at the lake this year. I am proprietor of the Grand View hotel at Greenwood lake, situated on the east arm of the lake. In the months of August, September and October I have not been able to keep guests at my hotel owing to the fact that the guests were attacked with malaria and would leave. This state of facts did not occur when the lake was at its usual height. The stench about the drawbridge and about my place is terrible and we have been unable to open our doors or windows on account of the smell occasioned by the decaying vegetable matter, left by the water being drawn down.

G. W. TEN EYCK, JR.

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

JESSE QUACKENBUSH appeared before the health officer and testified as follows: I have lived at Greenwood lake for the past 12 years, at the Wendemere hotel at the head of the main lake.

Since the month of August, 1900, the stench from the lake from decaying vegetable matter and dead mussels is sickening. At times it is almost impossible to walk from the house to the dock owing to the sickening odor. I have been sick myself, taking quinine, and believe I was suffering from malaria occasioned by the decaying matter aforesaid. Ross Wilson, a party residing in the hotel, was sick in bed during the month of September with malaria. Dr. W. S. Rogers of New York city attended him after he went home and said that he had been suffering from malaria. Several of the help in the hotel were sick with malaria during the months of August and September.

JESSE QUACKENBUSH

Sworn to before me November 28, 1900.

G. W. McElroy
Notary public

George Hazen appeared before the health officer and testified as follows: I have lived at Greenwood Lake for the past 40 years. About the 1st of September, 1900, I was taken sick with malaria, and Dr. Dowling told me that my sickness was occasioned, as he believed, from the decaying vegetable matter left by the water of the lake being drawn down. My little girl has been sick this fall with malaria, and we have given her quinine almost every day. I never had malaria before in my life, and my family's health has been generally good. I know that the boarders at the Ferncliff hotel threatened to leave on account of the stench about the lake from the decaying vegetable matter.

GEORGE HAZEN

Sworn to before me November 28, 1900.

G. W. McElroy
Notary public

William H. Hazen, appeared before the health officer and testified as follows: I have lived at Greenwood lake for the past 58 years. The general condition about the lake is healthy except when the water is drawn off. I suffered with malaria when th water was drawn down previous to the present time, and this fall I have had malaria for the past two months. I have taken quinine and used herbs that I have made a tea of. I have had the malaria every day during that time, and am still suffering from it. I live within 50 feet of the shore of the west arm of the lake and the stench and smell has been terrible, occasioned by the decaying vegetable matter. My wife has been sick this fall from malaria and has had sore throat a great deal of the time.

WM. H. HAZEN

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

PHILANDER C. RYERSON appeared before the health officer and testified as follows: I have lived at Greenwood Lake all my life and am 23 years old. About six years ago, when the lake was drawn down, I suffered with malaria for three weeks. I have not had the malaria since until this fall, and since the month of August I have been suffering with malaria. I have had no doctor, but have taken quinine at home. I live in the village of Greenwood Lake, and my work is principally on the water and the smell and stench is terrible.

PHILANDER C. RYERSON

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

FRANK L. HALL appeared before the health officer and testified as follows: I have lived at Greenwood Lake for the past 37 years, and am the postmaster at said lake. About the 1st of September, 1900, my daughter was sick with chills and fever. I live on the east arm of the lake, and when the water was drawn down to its present condition the smell from the decaying vegetable matter was terrible. We had to close our doors and windows. Prior to that time my daughter had not had chills and fever until the time the lake was drawn down before several years ago. We gave our daughter quinine and physic. I keep a general store at Greenwood Lake and sell quinine, and my sales this fall have been more than double previous years. My other children are not well and I have given them quinine occasionally and have taken preventives myself.

FRANK L. HALL

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

EDWARD T. WATERSON appeared before the health officer and testified as follows: I have lived at Greenwood Lake for the past 45 years. The general health of the residents of the lake is good. I have noticed when the lake has been drawn down that there was considerable stench from the decaying vegetable matter and that many families about the lake were suffering from chills and fever and malaria troubles. The lake has been drawn down nearly eight feet this fall and the sickness about the lake is more than threefold more. I have known of several families, boarders at the lake, leaving earlier this fall, owing to the smell occasioned by the low water. Mr. Stebbens, a boarder at one of the hotels, has been a great sufferer from malaria this fall, and he informed me that he had never had the malaria before.

E. T. WATERSON

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

CHARLES ANJERMILLER appeared before the health officer and testified as follows: I have lived at Greenwood Lake for the past 15 years, and live now at Hotel Linden. on the east arm of the lake. During the time I have lived at the lake my health and the health of my family has been good, except this fall. My family have been suffering from malaria this fall. We have not called a doctor, but have given my family quinine and physic. The smell from the decaying vegetable matter is terrible and we have had to keep our doors and windows shut a great deal of the time. I believe the sickness in my family is occasioned by the smells occasioned by the drawing off of the water to so great an extent.

CHARLES ANJERMILLER

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

SAMUEL J. GARRISON appeared before the health officer and testified as follows: I have lived at Greenwood Lake all my lifetime. I am 31 years of age. The general health of the inhabitants of the village is good. During the fall of 1900 there has been considerable sickness from malaria in the families of the residents of Greenwood Lake. The water in said lake has been drawn down about eight feet and leaves both the east and west arms of said lake bare and there has been a considerable stench from the exposed bottom of said lake and the decaying of vegetable and other matters therein. My sister's child has been sick with malaria for the past three months and has moved away from the lake temporarily. Her health previous to that time has been good. I believe that the decaying vegetable matter and the dead fish and mussels left by the receding waters has produced an unusual unhealthy condition about the lake, and produces malaria and chills and fever. I know that the family of Mr. Mege, 164 East 70th street, New York city, left the lake suffering with malaria during the latter part of August. I have seen other residents about the lake in the store of Frank L. Hall suffering from malaria.

SAMUEL J. GARRISON

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

MINARD S. HAZAN appeared before the health officer and testified as follows: That he has lived at Greenwood Lake, N. Y., for the past 25 years, and about 2000 feet from the east arm of said the past 25 years, and about 2000 feet from the east arm of said were sick with malaria, and that Dr. Geo. B. Dowling, a practising physician, attended them and pronounced the sickness malaria; that during October they were also sick with malaria; that they have four children, all of which have had malaria during the months of September and October, and one child who is at present sick with it. This deponent further says that he deals in drugs, and has sold this season more quinine than he ever sold before during the same time; and this deponent verily believes that the cause of so much malaria is due to the exposed marshy ground of Greenwood lake, caused by the drawing off of water from said lake, and the smell from the lake that arises from the exposed parts is very offensive, and in my belief cannot but be injurious to public health.

MINARD S. HAZAN

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

MRS. HENRIETTA A. MITTNACHT appeared before the health officer and testified as follows: I have lived at Greenwood Lake since May, 1899, at the Mountain Spring house; prior to that we lived in New York city. We never had malaria in our family until this fall. During the months of August, September and October, 1900, our whole family have been afflicted with malaria. Dr. Braden and Dr. Pitts of Warwick have attended members of our family this fall. Since the water has been drawn down a large part of the bed of the west arm of the lake has been exposed, and the smell from the decaying vegetable matter and the dead fish and other matter, in my judgment, and as I was informed by both of the doctors, occasioned the malaria. Members of my family are still suffering from said malaria.

HENRIETTA A. MITTNACHT

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

Mrs. ISABELLA TEACHMAN appeared before the health officer and testified as follows: I have lived at Greenwood Lake about 14 years; during that time myself and children have had generally good health; during the last three months my children and myself have had malaria, and my husband has been sick also. The water of the lake has been drawn down this last fall and the smell from the decaying vegetable matter has been very offensive, and I believe has caused the malaria in my family. We have not had an attending physician, but had doctored ourselves with quinine.

ISABELLA TEACHMAN

Sworn to before me November 28, 1900.

G. W. MCELROY
Notary public

HARRY RUMSEY appeared before the health officer and testified as follows: I have lived at Greenwood Lake all my life. My little girl has been sick with chills and fever during the past three months. She has been attended by Dr. Pitts, Dr. Dowling and Dr. Hall. I have also had malaria this fall which I believe was occasioned by the drawing off the lake and leaving the decayed vegetable matter on the ground, the smell from which is terrible. I have not had malaria before in many years.

H. RUMSEY

Sworn to before me November 28, 1900.

G. W. MCELROY
Notary public

JOHN UTTER appeared before the health officer and testified as follows: I have lived at the lake during the past five years. I never had the malaria until this fall. My children never had malaria until this fall and they have all been sick this fall with malaria. I have nine children. They have been attended by Dr. Pitts and Dr. Dowling. The water of the lake has been drawn down considerably this year, leaving the east and west arms of the lake exposed, and the stench from the decaying vegetable matter, dead fish, etc., is something terrible and I believe occasioned the sickness of myself and family.

JOHN UTTER

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

MAX A. CHAIMSON appeared before the health officer and testified as follows: I have lived at Greenwood Lake about 12 years. Myself and family have enjoyed general good health until this fall. For the past three or four months myself and family have been suffering from chills and fever. The smell about the lake from decaying vegetable matter, dead fish, etc., has been something terrible and I believe occasioned the sickness in my family. I did not call a doctor but treated my children by giving them quinine, and I took the same medicine myself.

MAX A. CHAIMSON

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

JACOB RYERSON, JR. appeared before the health officer and testified as follows: I have always lived at Greenwood Lake and the health generally of the residents of the lake has always been good. I have heard many complaints by persons suffering from malaria about the lake during the past three or four months. I have noticed a peculiar stench from the water of the lake occasioned by the decaying vegetable matter left exposed by drawing down the water of the lake.

JACOB RYERSON, JR.

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

ALEX. RIKERT appeared before the health officer and testified as follows: I have lived at Greenwood Lake for the past seven years. During that time the health of myself and family has been generally good until about a year ago when my daughter was attacked with malaria. Dr. Hall attended her. This year, 1900, both my wife and daughter have had the malaria. I did not have a doctor but treated them myself at home. I have noticed a terrible stench about the lake during the past three or four months, occasioned from the dead matter left in the bed of the east and west arms of the lake that are now bare by reason of the water in the lake being drawn down.

ALEX. RIKERT

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

GEORGE RELYEA appeared before the health officer and testified as follows: I have lived at Greenwood Lake for the past two years; myself and family have had good health during all that time until the past three or four months. Four members of my family have been suffering from malaria or chills and fever this fall, and I believe it was occasioned by the stench about dead matter left in the bed of the east and west arms of the lake occasioned by the decaying vegetable matter in the east and west arms of the lake where the water has been drawn down.

GEORGE RELYEA

Sworn to before me November 28, 1900.

G. W. McELROY
Notary public

Special Investigations and Reports

CROTON-ON-HUDSON

CROTON-ON-HUDSON, N. Y., *March* 22, 1900

BAXTER T. SMELZER, *Secretary State Board of Health:*

Dear Sir—There is being maintained at this village a public nuisance in the shape of a dug-out clay bank, owned by the estate of P. C. Van Wyck, of which estate Wm. E. Barlow of this village is agent.

Complaint has already been made to the local board of health but without action. Now I address you, asking that the matter be looked into at once, as I am sure that said nuisance is causing numerous cases of sickness of which I for one am a sufferer.

Trusting you will be prompt in looking into the matter, I am

Very truly yours

H. VAN TASSELL

CROTON-ON-HUDSON, N. Y., *March* 28, 1900

BAXTER T. SMELZER, *Secretary State Board of Health:*

Dear Doctor—A copy of complaint of H. Van Tassell was handed me by the clerk of our local board of health. A complaint has been regularly made to our board and at each meeting we have taken action upon it by discussing various means for the removal of the nuisance—clay bank pond. To successfully remove it, the nuisance, will cost a small fortune, and any action we take will be fought in the courts, and yet our taxpayers are opposed to paying any money to carry the case through, so at our last meeting we directed the clerk to consult the State Board or ask for an inspector to assist us in which is the best way to proceed.

Yours fraternally

W. N. MILLER

Health officer

ALBANY, *March* 30, 1900

W. N. MILLER, M. D., *Health officer, Croton-on-Hudson, N. Y.:*

Dear Sir.—I am in receipt of your communication of the 28th instant, in explanation of the nuisance complained of by H. Van Tassell.

In reply you are informed that this Board will give you all possible aid in the matter, and it is suggested that the present may not be an opportune time to make an investigation on account of the melting of the snow, etc.

If you will inform me later when in your judgment it would be well to make an examination we will send one of the consulting engineers of the Board to Croton-on-Hudson for that purpose; also to advise your board as to the course they should take in the matter.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *June* 6, 1900

WILLIAM E. BARLOW, *Agent Estate of P. C. Van Wyck, Croton-on-Hudson, N. Y.:*

Dear Sir—This Board having received complaints concerning an alleged nuisance on the property of the estate of P. C. Van Wyck at Croton, N. Y., a representative of the Board visited Croton on May 31st and found that the body of water on the property referred to was the cause of a nuisance which is most certainly detrimental to health, and the local authorities would be justified under the law in taking steps to cause the abatement of the nuisance.

Before advising the local board in the matter of requiring the abatement of the nuisance, it is requested that you inform this Board whether the owners of the property have in contemplation any action on their part to cause the present unsanitary conditions to be remedied.

It has been suggested to the local board of health that the question as to how the nuisance may be abated is an engineering problem, and if the owners of the property desire it, this department will send one of its consulting engineers to investigate and advise in what manner the present unsanitary conditions can be remedied.

Very respectfully
BAXTER T. SMELZER
Secretary

CROTON-ON-HUDSON, N. Y., *June* 16, 1900

BAXTER T. SMELZER, *Secretary, N. Y. State Board of Health, Albany, N. Y.:*

Dear Sir—In answer to your letter of June 6, 1900, regarding a pond on the brick yard property at this place, which there has been a complaint made against same, I would say that I should be glad to have your engineer meet me here and go over the ground and see what he or your Board would suggest.

Respectfully
WM. E. BARLOW

ALBANY, *June* 18, 1900

Prof. OLIN H. LANDRETH, *Consulting engineer, State Board of Health, Schenectady, N. Y.:*

Dear Sir—I enclose herewith papers in a complaint made by H. Van Tassell concerning an alleged nuisance caused by a pond of water on the premises of the estate of P. C. Van Wyck at Croton-on-Hudson.

As will be seen upon referring to a letter addressed to W. E. Barlow on June 6th, a suggestion was made that one of the consulting engineers of this Board be sent to advise as to a means of abating the nuisance.

Mr. Barlow to-day requests that a consulting engineer be sent to Croton, and you are directed to proceed there at your earliest convenience for the purpose of investigating the nuisance and advising as to a means for its abatement.

Notify Mr. Barlow when you can go, also inform the health officer, Dr. W. N. Miller.

Very respectfully
BAXTER T. SMELZER
Secretary

SCHENECTADY, N. Y., *October* 4, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I beg to submit the following report on my examination of the conditions found to exist at the abandoned brickyard situated on the land of the P. C. Van Wyck estate at Croton, N. Y., made in accordance with your instructions of June 18th.

The examination was made on July 17th in the presence of Dr. W. N. Miller, health officer of the village of Croton-on-Hudson, and Wm. E. Barlow, agent of the Van Wyck estate. The abandoned clay bank or pit is located in a deep depression or valley within the corporate limits of the village of Croton-on-Hudson and about one-half mile east of the New York Central railroad station. The locality is a high plateau some hundred or more feet above the river and lying between the Hudson and the Croton rivers. The natural basin in which the clay bank is situated is a local enlargement of the valley of a very small stream and covers an area about one-half mile long and 600 to 800 feet in width; its original depth below the plateau was about 60 feet and the excavation for brick clay has made it 20 feet deeper in places and about 15 feet deeper than the level of the outlet at the lower end. The area thus deprived of drainage is some six or eight acres. On one side a rough ditch has been made which leads the natural water of the valley around the excavated area and intercepts the drainage flowing to the basin. The drainage area remaining is about one-half a square mile.

The accumulation of stagnant water in the bottom of a deep basin, such as this is, has naturally produced malarial conditions, and the health officer, on inquiry, counted 10 cases of malaria in the immediate vicinity which, in his opinion, were directly due to the existence of the undrained clay pit, and he stated that probably the number would be doubled by August 1st, at which time malaria is always more prevalent there. This condition as to the clay pit has continued for several years. The bank was first worked about 10 or 12 years ago and was worked up to about two years ago; the excavated area growing in extent and depth and the unsanitary conditions and results also increasing up to the present time. There would appear to be no other cause for malaria in this elevated situation than this clay pit, though cases of malaria are frequently known in the lower portion of the village along the river. As your instructions called for advice as to the means of abatement of the unsanitary conditions, I considered with Mr. Barlow the feasible plans for securing the needed improvement. These are (1) Draining the excavation; or (2) Filling it up to the elevation where the present outlet will drain it. The first of these appears to be a very expensive undertaking owing to the great distance a cut would have to be made to reach a point of discharge, and to the fact that it would require rock cutting of considerable depth on a part of the line. The other plan appears to be entirely feasible and if worked in conjunction with a systematic plan for improving the property of the estate and getting it in shape for building up would return results in addition to the abatement of the nuisance which it now certainly constitutes. This improvement involves the laying out of new streets, some quite heavy excavations and grading for one of those streets, and the using of the excavated material to fill the abandoned clay pit. I recommended strongly to the agent, Mr. Barlow, that he proceed at once to secure plans for the improvement so as to have the nuisance abated before the warm season of next year, and he intimated that he would do so, and by this time should have made substantial progress along some line toward the desired abatement.

Notwithstanding that the removal of the unsanitary conditions would be of unquestioned financial benefit to the property, it is quite likely that failure to appreciate this on the part of the owners, and other financial reasons, may induce them to indefinitely defer the improvement unless the public health authorities insist on a prompt abatement of the nuisance. The conditions being extremely unsanitary, and having been shown to be the direct cause of sickness, and due to the acts of representatives of a single estate with no division or indefiniteness of responsibility for the nuisance, and ample time having been given the estate since complaint was first served against the conditions, and also ample time having elapsed since the agent has been shown two possible remedies at least, I beg to recommend that the State Board take the necessary action either in conjunction with, or independently of, the local board of health, to insure the early abatement of the nuisance, if not already accomplished, as to which I am not informed. I am, dear sir,

Very truly yours
OLIN H. LANDRETH
Consulting engineer

ALBANY, *December* 3, 1900

EUGENE BARTON, *President Board of Health, Croton-on-Hudson, N. Y.:*

Dear Sir—I enclose herewith copy of a report made by Prof. O. H. Landreth, upon his investigation of a complaint concerning a nuisance on the property of the P. C. Van Wyck estate.

In compliance with a resolution adopted at a meeting of this Board, held November 14, 1900, it is requested that the board of health of the village of Croton-on-Hudson convene for the purpose of adopting the measures necessary to insure the early abatement of the nuisance.

You are requested to keep this Board informed of such action as may be taken in the premises.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *October* 11, 1900

Dr. W. N. MILLER, *Health officer, Croton-on-Hudson, N. Y.:*

Dear Sir—I enclose herewith copy of a report made to this Board by Prof. Olin H. Landreth, upon his examination of the conditions claimed to exist on the abandoned brick yard situated on the land of the P. C. Van Wyck estate at Croton-on-Hudson.

You are requested to inform me whether or not the agent of

the Van Wyck estate has done anything in the way of complying with the recommendations made by Prof. Landreth, looking to the abatement of the nuisance.

Very respectfully
BAXTER T. SMELZER
Secretary

CROTON-ON-HUDSON, N. Y., *December* 8, 1900

BAXTER T. SMELZER, *Secretary State Board of Health:*

Your communication of December 3d at hand. The board of health of this place have requested me to report on the matter referred to.

The local board ordered the Van Wyck estate to fill the clay bank pond to such an extent as to abate the nuisance of stagnant water now existing. This was done, I believe, July 27th, 30 days being given in which to commence the work. It was commenced August 27th, to be done by contract. Work has continued steadily, using about six carts daily so far, but as the work progresses will put on 12 carts. To date there have been put in about 10,000 yards of material; it will take, in my judgment, between 25,000 and 30,000 yards in all. The deepest part has been filled at the beginning of the excavating and filling and continuing more or less to date. There has been an increase of malaria around the section near the clay bank, showing that the malaria in this district was certainly caused by the nuisance existing in the clay pond. Any further details you may require I will gladly furnish you.

Yours very truly
W. N. MILLER, M. D.
Health officer

FREDONIA SEWERS

FREDONIA, N. Y., *July* 31, 1900

State Board of Health:

The state, in connection with our corporation, have a main outlet sewer emptying into creek running through our village, but some distance below thickly settled streets. There are also overflow sewers emptying into stream immediately in town, one even where Main street crosses creek. Complaints of condition of water in stream below town continue to increase, and from cause, as conditions are very bad indeed. The main outlet sewer was first commenced by the state to accommodate the state normal school, but by agreement our corporation use it as our main outlet for our system of sewerage.

We should be pleased to have a representative from your Board look us over and make any suggestions advisable for bettering present conditions.

L. C. BALDWIN
Secretary board of health

ALBANY, *August* 1, 1900

L. C. BALDWIN, *Secretary Board of Health, Fredonia, N. Y.:*

Dear Sir—I am in receipt of your communication of the 31st ultimo, calling attention to the alleged unsanitary conditions in the village of Fredonia, caused by the manner of disposing of the sewage, and requesting that a representative of this Board be sent to advise with the local authorities as to means to be adopted for a betterment of existing conditions.

In reply you are informed that C. W. Adams, one of the consulting engineers of this Board, has been directed to visit Fredonia for the purpose of advising with your board in the matter of remedying the present unsanitary condition of the village.

Very respectfully
T. A. STUART
Assistant secretary

AMSTERDAM, N. Y., *August* 17, 1900

B. T. SMELZER, *Secretary State Board of Health, Albany, N. Y:*

Sir—Under the date of August 1st, you enclosed to me a communication from L. C. Baldwin, secretary of the local board of health of Fredonia, relative to the sewer system of the village, and directed me to examine into the matter and report.

I have the honor to submit thereon the following report:

By mutual arrangement with Mr. Baldwin, I visited Fredonia, August 12th. President of the village, Mr. Warren; chairman of the board of health, Mr. Roberts; Mr. Bartram, a member; Dr. Evans, health officer, and L. C. Baldwin, clerk, met me and together we inspected the conditions about which the inhabitants entered complaint.

Fredonia is a village of about 4500 people. Its topography is rolling. It is divided by the valley of the Canadaway creek, which is at times a considerable stream, but at the time of my visit a mere brook, flowing northwesterly and entering Lake Erie about three miles distant. The fall of the creek through the village is considerable, there being at least two water powers developed within the village limit; these powers creating dams, and impounded water being carried in the usual way by mill races to the mills. During midsummer there is not sufficient water to run the mills, but still the water flows through these races, leaving a considerable stretch of the creek bed with only a trifle of water flowing therein. The country between Lake Erie and the village of Fredonia is well settled and the owners of the land adjoining the creek and the people who cross the creek on the highways of the town complain of the nuisance created by the sewage from Fredonia discharged into the small amount of water flowing in the creek, which lodges along the shores, on the exposed ledges of rock forming the creek bottom, and creates an offensive odor and an unsightly appearance. The water of the stream below the entrance of the main sewer appears to me so much polluted as to be unfit for drinking purposes by cattle. This nuisance has not yet developed into any epidemic of sickness among the people of the village or town.

I examined the plans for the village sewers. They were prepared by Chester B. Davis, civil engineer, of Chicago, in 1885. The design consists of a main sewer 15 inches in diameter from the creek about 1500 feet below the nearest highway, running up parallel with the creek to this highway, called Risley street; thence up through the streets to the center of the village. Lateral sewers on various streets join this main outlet and nearly the entire sewage of the village is received by this main outlet and discharged into the Canadaway creek at the point mentioned. There are, however, several private drains from individual dwellings and one public sewer from a street one block in length, which discharge into the creek near the center of the town. The system of sewers designed, intends to care for these private drains and other sewers by an intercepting sewer running parallel with the creek to a point where it would connect with the main outlet sewer. For a portion of the way this intercepting sewer would probably be built over private property.

The Fredonia state normal school started the first sewer and built the chief portion of what is now the main outlet of the system of sewers for the village. The school premises are situated near the center of the village, and by mutual arrangement, the village procured the right of way for the normal school sewer and the state agreed to permit the village to enter into it with its sewer system. The school has during the school year a population of perhaps 600 people, and it is apparent that the state is a party to the creation of the nuisance complained of. The sewers thus far constructed are on the "separate system" plan, the storm water being carried off on the surface.

I am satisfied that the complaints of this sewage nuisance will increase and that the time is near at hand when the sewage will be purified before being discharged into this little stream. The conditions are favorable for the installation of an effective purification plant. Its design might be that of intermittent filtration. An area of level land bordering the creek remote from houses appears to be favorable for this purpose, the bed of the creek being six or eight feet below the general level of this area of land and the land itself appears to be gravel. To properly install such a system it would be necessary to prepare the area in the usual way, and in connection with it build a receiving tank for the sewage and a small pumping plant to elevate it on to the filtration beds. It is quite possible that a survey and plans and estimate for an alternative system of purification might show that it would be cheaper to build a plant on the bacterial oxidation system, but either system could be successfully applied and the nuisance would be abated. To make a complete job of it the village authorities should construct the intercepting sewer contemplated in the design for the system and cause to be removed from discharging into the creek any of the single drains and one or two public sewers.

The Fredonia board of health seems to be of the opinion that such action as above outlined should be taken. However, they recognize the fact that many of the property owners are averse to the expenditure of the sum of money which it would cost. In similar instances heretofore the State Board of Health has been obliged to step in and stiffen the backbone of the local authorities by the exercise of its superior power, and it appears to me that this is a case where the State Board of Health could and should order steps taken and abate this nuisance.

It is suggested that the board of trustees procure competent and expert information as to the design that would be most suitable to adopt, whether by intermittent filtration through properly prepared beds or by means of septic tanks. The state being a large contributor to the sewage which creates the nuisance should pay a proportion of the expense of the purification plant and there can be no question but that the legislature, upon the request of the village, pusuant to the action of the State Board of Health, would make the necessary appropriation to pay for its share. The intermittent filtration plan is probably the best means of purifying sewage. The experiments which have been going on in England, and to a limited extent in this country for several years past, along the lines of bacterial oxidation, give promise of good results, and either of these methods might be adopted at Fredonia.

I wish to advise that a resolution be adopted by the Board something on these lines:

Whereas, The complaint of a nuisance caused by the discharge of the sewage of Fredonia into the Canadaway creek is well founded, as appears by the report of our consulting engineer, Campbell W. Adams, and said report outlines a method for the abatement of this nuisance, therefore,

Be it resolved, That the local board of health be directed to exercise its authority in the matter and call upon the trustees of the village to take such action as will abate this nuisance,

Resolved, That the secretary be directed to transmit to the board of health of Fredonia, N. Y., a copy of Mr. Adams' report, and also a copy of the resolution adopted by the State Board of Health.

Respectfully submitted.

CAMPBELL W. ADAMS
Consulting engineer

CONGERS

McGinnis lake nuisance

CONGERS, N. Y., *July* 30, 1900

To the State Board of Health:

Gentlemen—At our regular meeting of the Citizens' improvement association, we, the undersigned, were appointed a committee to call your attention to the condition of the dam and the surroundings of the McGinnis lake at Congers, N. Y., to ask your immediate action to avoid sickness of the resident-families and the vacating of their homes. Our association has used their small fund for repairs to stop leakage at the dam but are unable to continue the expense. The fact is that if this leakage is not stopped at once the lake will run dry, the fish will die, and the miasma will make the place unhabitable. Our resident physician will verify our complaint. Therefore we beg that you will appoint an early meeting with us to view the conditions named.

HENRY P. BAHRENBURG
ROBERT GOETZ
Committee No. 2, Citizens' improvement association

CONGERS, N. Y., *August* 1, 1900

Board of Health:

Dear Sirs—I can fully endorse what the committee of Citizens' association says of the dangers of low water in the new lake. The lake is a menance to public health at all times, being too shallow even at highest water to drown out disease germs. When it is low all sickness of miasmatic nature is greatly increased. If it should go lower than it has yet done, at this time of year, the result would be most disastrous to people of this community.

Yours respectfully
V. M. DAVIES, M. D.

NEW CITY, N. Y., *September* 19, 1900

Secretary, State Board of Health, Albany, N. Y.:

Dear Sir—In reference to the matter of the lake at Congers the following is the report made by the health officer:

On Saturday, 15th instant, I made another official visit and inspection of Congers lake, going entirely around the same, and find that the dam still leaks, but not so freely as formerly; that the lake water level has fallen about six or eight inches; that the margin of the lake has become exposed for about 15 inches since the visit of the board; that I can not detect any smell or odor arising therefrom; that the water is not stagnant, but is pure and sweet, and that the additional surface exposed at the edges of the water amounts to nothing, and that with the recent rain that surface is probably covered.

A. O. BOGERT
Health officer

The lake is private property and there has as yet no contagious diseases of any kind appeared near said premises and the board can not in the courts prove that there exists any nuisance so far at any rate. We have communicated with an attorney in New York, who, we have been informed, has charge of said premises and that they are now or about to commence proceeding of foreclosure on said premises. The board is at a loss as what to do.

Respectfully yours
E. C. BUCHENAU
Secretary

UTICA, N. Y., *December* 17, 1900

Hon. B. T. SMELZER, *Secretary State Board of Health:*

October 16th last you sent me some papers in the matter of the complaint of H. P. Bahrenburg and others regarding McGinniss lake, Congers, N. Y., with instructions to visit the place and investigte the complaint. I did so, and my report follows:

October 24, 1900, the complainant, as one of a committee of citizens met me at Congers. H. P. Bahrenburg, W. H. Hankins and D. Martling, gentlemen of the committee, drove me quite around the lake and to neighboring points where I might gain information upon the matter at interest.

McGinnis lake is an artificial body of water. It is contiguous to Rockland lake, which is beautifully situated among the hills of Rockland county and has long been known as a summer resort and visited by large numbers of people during the summer season. Its shores are permanently occupied by summer cottages and hotels. Rockland lake is largely spring water and its outlet flows a considerable stream all the year. It is the source of the water supply of Nyack, tapped at a point some few miles below Rockland lake.

The stream flows generally in a southern direction with gently sloping banks. The West Shore railroad passes north along its westerly bank. The existence of the railroad makes Congers a suburb of New York, and the presence of these little lakes along this stream, a prime cause for the location of the many summer houses in the vicinity.

In 1894 Mr. McGinnis purchased several tracts of land bordering on this outlet of Rockland lake and at a point suitable he built a small dam across the stream and by embankments extending across the lowlands created a reservoir or pond or lake which became known as "McGinnis lake." The dam is of earth with stone retaining wall along a part of its front and wood sheathing along a part of its back. At the stream bed a wooden spillway was provided and it maintains the water at a certain height, perhaps 10 feet deep. Nearby is a man-hole containing a valve on an iron waste pipe which can be opened and the lake drawn down, perhaps, even emptied. The area flowed is about 150 acres when the water is at the crest of the spillway, and the trees and shrubs were cut down before closing the dam. The area was not grubbed, however, the stumps being left out of sight when the lake is full, but distressingly apparent when the lake is drawn down, from any cause.

Mr. McGinnis laid out the shores into streets and building lots. He built a big ice house at the foot of the lake along the railroad. He cut ice and sold it. He sold lots and a number of the purchasers built houses on them, and all was lovely. It seems that McGinnis milked the project until it ran dry and then disappeared. Disaster ensued. Titles to the property became involved; the ice plant is unused and dismantled; the perishable portions of the dam have decayed, and it leaks. In the low water flow of summer, the leakage is greater than the inflow, and this excess of outflow with the evaporation lowers the lake so that its shores are exposed and vegetation grows, to be drowned when the water raises. The old stumps loom up also and the outlook for the cottagers is not the scene of beauty they desire. They complain, and through a citizens' committee have sought relief. To the extent of their means the committee of citizens has stopped some of the leaks at the dam. They have appealed to the local town board of health. Health officer A. O. Bogert made a report upon the matter September

19, 1900, and the town clerk, E. C. Buchenau, of Clarkstown, has also reported upon it. Copies of these reports I have, and in brief they do not help the situation. Hence the appeal of the complainants to the State Board of Health.

The remedy for the complaint lies in the entire control of the dam and pond and shores by an individual or a company whose interests would be like those of the lot owners. Under such control the dam could readily be rebuilt or effectually repaired so as to maintain the flow line at its normal height.

There would be no complaint then.

My suggestion to the State Board of Health is, as a conclusion to await such a union of ownership or control. If this should not materialize, and next summer the lake shores become still more exposed, permitting decayed vegetation to appear and become a nuisance, then, upon further complaint, to compel the local board of health to abate the nuisance, either by causing the dam to be well repaired, or, by its removal permit the stream to flow as formerly.

Very respectfully
C. W. ADAMS
Consulting engineer, State Board of Health

VILLAGE OF ADDISON

ADDISON, N. Y., *August* 4, 1900

To State Board of Health:

Sirs—Our village board of health have instructed me to confer with you regarding the propriety or advisability of sending a representative of your board here to consider the question of sewers for this place. We have no system of sewers. It has come to a matter of "every man for himself" as to the disposal of sewage and there is great impropriety exhibited in at least one instance—in fact it involves three or four instances all in one, and our board is loath to demand what ought to be done, but would be "stiffened up" a little by the State Board. If a man can be sent we shall be glad to have him.

Don't make any appointment for August 14th or 15th, for I expect to be in attendance at a medical meeting on Lake Keuka on that date. If my presence or absence makes no difference I will not make mention of time.

Respectfully yours
D. J. CHITTENDEN
Health officer

D. J. CHITTENDEN, *Health officer, Addison, N. Y.:*

Dear Sir—I am in receipt of your communication of the 4th instant referring to the necessity for a system of sewers for the village of Addison and requesting that a representative of this Board be sent to the village for the purpose of advising with the local authorities on the subject.

In reply you are informed that Prof. Olin H. Landreth, consulting engineer of this Board, has been designated for such duty, and will communicate with you as to when he will reach Addison.

Very respectfully
BAXTER T. SMELZER
Secretary

SCHENECTADY, N. Y., *September* 25, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Agreeable to your instructions of the 18th of August to investigate the sanitary conditions in the village of Addison, Steuben county, with reference to the necessities for sewerage, I beg to say that I made the desired examination on September 4th and submit the following report of my investigation. Dr. D. J. Chittenden, the health officer of the village, had been called away on the day of my visit, but had designated Geo. H. Wetherbee, the president of the board of health, to meet me, and he directed the superintendent of streets to show me the essential points in the village. I also met a number of prominent business men and leading physicians of the village from whom much useful information was received.

Addison is situated on the Canisteo river, in the central-southern part of Steuben county and on the Erie railroad. It has a population of about 2100 people and was incorporated as a village under a special act of legislature in 1878. The business portion of the village and about one-half the residences are on the south side of the Canisteo river, where the topography near the river is alluvial and rather low, but rises gently back from the river. The north portion of the village occupies higher ground with a steeper slope toward the river. A hotel and a few stores and saloons are situated along the north bank of the river between the stream and the Erie railroad tracks, which follow the river through the central and eastern part of the village. The soil is a gravelly clay loam overlaying a water-bearing gravel, with some alluvium along the south side of the river. The water-bearing gravel or gravels, for there appears to be two or three of them, from which the well waters are derived, lie from 12 feet to 40 feet below the surface of the ground on the south side, and extend to even greater depths on the north side, some of the wells being nearly 60 feet in depth.

The water supply of the village is divided nearly equally between the private wells and the public water supply owned by a private water company. The character of the well waters is not uniform, many of the wells being excellent, while others are unreliable in their supply and unsatisfactory in quality. The public water supply is reported to be fairly satisfactory and the use of public water is estimated to be increasing. The source whence the public supply is taken is a well some 30 feet in depth located near the river bank and in the business part of the village. The water in the village well stands several feet below the water in the river, and in answer to inquiries it was stated by the engineer who runs the pump that the well water does not rise and fall with the river. It is probable therefore that there is no very direct connection between river and well.

The village has no recognized sewer system, though there are a number of drains that partake of a public character, in addition to several that have been built and maintained by private parties. Two old drains built by the village for storm-water purposes and still used for that purpose are also improperly used for sewerage by connections made from time to time by private persons apparently with the knowledge, if not the direct authority, of the public officials. There are also several private sewers from private houses and from two hotels, all of which discharge into the river, either directly or through one or the other of the public drains. In the aggregate I learned of some 25 or 30 houses or business places that had either complete or partial sewerage to the river. While I was there a new sewer was being laid by the village authorities primarily to sewer the village high school and to drain a low spot in the northerly part of the village where the topography made natural drainage unsatisfactory and where several cases of illness, including some typhoid fever, had prevailed. It was stated to me that this sewer was intended to be regularly used by private citizens as a sewer. This sewer was being laid in utter disregard of the law requiring all sewer plans to be referred to the State Board of Health for examination and approval, and it is also proper to say that the State Board would certainly not have approved the plan nor the construction of this sewer as it was actually being laid. The remainder of the population, probably 85 per cent, are dependent on privy vaults and a very few cesspools. No regular system or practice of cleaning out these vaults is followed nor required; when one becomes filled up, it is abandoned and another one dug to take its place. Under these conditions it is easy to see that not only ought great suspicion to be cast on the quality of many of the well-waters, but that the air about the houses in many cases should be offensive and polluted, as was reported to me. I do not mean to carry the impression that this manner of dealing with vaults is universal: it is the general rule with too few exceptions. The population of the village is made up of intelligent well-to-do tradespeople and retired farmers and business men with the usual proportion of professional men. There is little manufacturing and little if any of the manufacturing "operative" element in the population. The village debt is not large and the condition of the village is such as to clearly warrant the cost of increased sanitary improvements. In view of the above-mentioned conditions and facts, I am of the opinion:

(1) That a complete system of sewers built on modern lines is a necessity which the village should take immediate steps toward securing, and that such system should be executed in installments of greater or less magnitude and frequency as the needs of different parts of the village require, and as the capacity to provide funds warrants.

(2) That as a preliminary step to the said sewer system the village authorities should without undue delay proceed in accordance with section 260 of chapter 414 of the laws of 1897 (the village law), to procure a map and plan for a permanent sewer system and disposal works to be duly approved by the State Board of Health, and that on such plan all sewers shall hereafter be built.

(3) That the local health officer should be directed to cause analyses and examinations to be made of the waters of such wells as he has reason to suspect may be infected from privy vaults or other sources and that such wells as are found to be unsafe for use be ordered closed.

(4) That the local board of health should be directed to institute and enforce a thorough system by which accumulations in privy vaults should be removed and the same thoroughly disinfected, and that hereafter such vaults should be regularly emptied and disinfected at short intervals, or in their place that panned closets or dry-earth closets be substituted and maintained in sanitary condition.

I am, dear sir, very truly yours

OLIN H. LANDRETH
Consulting engineer

Albany, *January* 8, 1901

D. J. Chittednen, M. D., *Health officer, Addison, N. Y.:*

Dear Sir—I transmit herewith a copy of the report made by Prof. Olin H. Landreth upon his investigation as to the sanitary condition of the village of Addison.

The report of Prof. Landreth was approved at a meeting of this Board held December 21, 1900.

You are directed to present the report of Prof. Landreth to the board of health of the village of Addison, calling attention to the fact that the recommendations contained in the report have received the approval of this Board, and should be carried out by the officers of your municipality.

Very respectfully
BAXTER T. SMELZER
Secretary

BINGHAMTON

Chenango and Susquehanna rivers

Binghamton, *September* 7, 1900

To the State Board of Health, Albany, N. Y.:

Gentlemen—At a regular meeting of the board of health of the city of Binghamton held September 5, 1900, I was instructed to communicate with your honorable body with a view of concerting measures for the relief of existing conditions along the banks of the Chenango and Susquehanna rivers in this city in connection with the contamination of said river banks by the sewerage from Binghamton state hospital sewer, as at the present time the water in the rivers is low and the filthy condition of their banks is readily apparent. I would respectfully ask that you send an expert sanitarian to make an inspection of the existing conditions. I should be pleased to give him all necessary aid in his investigations.

The importance of a relief from this unhealthy condition is very evident to all visitors of this city as they pass over our bridges, and I would respectfully urge that the health of this city, especially those locations immediately situated along the banks of the rivers, demands immediate attention to this matter.

Trusting this communication will receive immediate attention I remain,

Very respectfully
I. A. HIX
Health officer

ALBANY, *September* 8, 1900

I. A. HIX, *Health officer, Binghamton, N. Y.:*

Dear Sir—I am in receipt of your communication of the 7th instant referring to the unsanitary conditions existing along the banks of the Chenango and Susquehanna rivers, caused as alleged, by sewage from the Binghamton state hospital, and note your request that a representative of this Board be sent to Binghamton for the purpose of making an investigation.

In reply you are informed that Prof. Olin H. Landreth has been designated for the duty, and he will reach Binghamton on Monday, September 10th, when he will call upon you.

Very respectfully
BAXTER T. SMELZER
Secretary

SCHENECTADY, N. Y., *September* 12, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Agreeable to your instructions of the 8th instant, I beg to report that I have made an examination of the conditions at Binghamton in the matter of the state asylum sewer now emptying into the Chenango river, and find the following state of affairs to exist

The state asylum at Binghamton lies in the angle between the Chenango and the Susquehanna rivers, and about two and one-half miles west of the Chenango and one-fourth mile south of the Susquehanna. Up to 1892 the sewage from the asylum was discharged directly north into the Susquehanna river, but as this point of discharge was above the intake of the Binghamton water works and thus contaminated the city water supply, the city and the state at joint expense built a new outlet for this sewer extending westerly through the city to the Chenango river some 2000 feet or so above its confluence with the Susquehanna.

The legislative enactment authorizing this partnership sewer and making an appropriation of $50,000 for the state's one-half of the cost of the same forms chapter 333 of the laws of 1891, and was approved by the Governor on May 6th of that year. An appropriation for an extension of this western outlet sewer was passed by the legislature in 1893, and forms chapter 496 of the laws of 1893, and appropriates $6000 for the purpose. The act of 1891 authorizing the co-operation on the part of the state and making the appropriation, specifies that the sewer is to be led to a point on the Susquehanna river below the Rockbottom dam. I have not been able in the short time since making the examination to learn the particulars of the change of location and the authority therefore, but presume the change was duly authorized. The sewer is used by the city and the act of 1891 places the burden of the cost of its care and maintenance on the city of Binghamton. In addition to this asylum sewer there are four or five street sewers and double that number of private sewers entering the Chenango within the city and above the asylum sewer outlet. Besides these there are several street and private sewers entering the Susquehanna from the north bank. In fact the entire sewage of the city is discharged in the two streams above indicated, and with the asylum sewage pollutes the streams to a very serious degree. Both banks of the Chenango river from the Erie railroad bridge down to the Susquehanna and the north bank of the Susquehanna are strewn with sewage, garbage and other refuse, including the stable manure from one of the city's fire engine houses. For this whole river frontage the water surface near the shore is covered with a slimy mass of aquatic vegetation entraining floating sewage and garbage, and the shallow water near the banks is filled with various other forms of aquatic growth which thrive only in polluted waters. Above the uppermost sewer the waters of the Chenango are clear, and the banks clean and gravelly, and the river here forms an attractive feature, a condition which might prevail throughout the whole river frontage if the polluting material could be kept from this part of the river. In addition to the disgusting appearance of the river banks the odors frequently cause annoyance to adjoining residents, and the decaying vegetation and floating putrescible matter along the banks produce just the conditions favorable to malaria, concerning the present occurrence of which there was some disagreement among the physicians and residents of the locality.

There appears to be a very general feeling entertained by both the city officials and by many residents whom I met that the pollution should be removed from the river, and it is proposed to accomplish that portion of the rectification incident to the discharge of sewage into the river by extending the asylum sewer across the Chenango river to its right or west bank, thence continuing the same down the west bank to the Susquehanna, thence along the north or right bank of this river to a point below the lowest built portion of the city. In the course of the extension along the bank of the Susquehanna the new sewer would be made to intercept all sewers entering the Susquehanna, and as an independent part of the improvement it is proposed to carry intercepting sewers along both banks of the Chenango river from a point where the uppermost sewer now enters the river down to the asylum sewer and its proposed extension, which the Chenango interceptors would enter.

It is proposed that the city of Binghamton shall bear the entire charge of the Chenango intercepting sewers above the point of confluence with the asylum sewer and its proposed extension, but that the state of New York should unite with the city in bearing the cost of the extension of the asylum sewer down the Chenango and the Susquehanna.

There are clearly four distinct questions involved in this inquiry:

(1) The desirability and necessity of the removal of the unsanitary and objectionable conditions existing along the two rivers;

(2) The most suitable and feasible manner or plan for securing a remedy;

(3) The cost of the improvement needed to secure the remedy;

(4) The relative proportion of the expense which should justly be borne by the city and state respectively.

On these four points I beg to recommend consecutively:

(1) That the conditions as before described are not only unsanitary and objectionable from considerations of health, but are unsightly and in strong contrast with the generally attractive manner in which the public and private property is maintained, and in this constitute not only an injury to property values, but serve as a detriment and a discouragement against both public and private efforts to secure and maintain that high decree of cleanliness and attractiveness for which the city is already favorably known and for which its natural surroundings and scenery so admirably fit it.

(2) The proposed system of extensions and interceptors appears to be the best solution of the question of remedy, and further will lie directly along any future plans for disposal of the sewage of the city without discharge into the rivers, for it is evident that disposal works of any kind or at any time will need to be located down the Susquehanna below the lowermost sewer. I beg to recommend however, that in executing any plan of extensions, the system of over-flow details be so designed as to exclude from such extensions, and therefore from the necessity of artificial treatment when disposal works shall become a necessity, *all* discharge from the sewers in excess above a *reasonable* provision for domestic and manufacturing sewage proper, so that the capacity of any such future disposal works will be limited by the normal flow of actual sewage and will not have to be designed to treat any portion of harmless storm-water.

(3) As to the cost of the improvements, the city engineer is now engaged in preparing plans and estimates of the cost of the proposed extensions, but as these are still uncompleted I am unable to state the cost.

(4) The proper determination of the just proportion of expense to be assumed by the city and the state respectively involves the study of a number of elements, such as: the relative populations in the city and at the asylum provided for; the relative future growth of these two classes of population; the relative cost of the extension proper, and of the intercepting sewers entering it; the fact that the law of 1891 imposes the burden of the care and maintenance of the sewer on the city, relieving the state from any portion of such burden; the fact that the sewage from the asylum is and doubtless will continue to be heavily charged with antiseptics which will render the artificial treatment of such sewage by future disposal works a matter of difficulty and expense.

These elements would require more time for their proper determination than it is desirable should be given before a report on the main matter is submitted. I beg therefore to offer the above report, and should you desire an estimate on the proportion which the state might justly assume you can indicate such desire.

I am, dear sir, very truly yours

OLIN H. LANDRETH

Consulting engineer

CONEWANGO SWAMP

JAMESTOWN, *January* 25, 190

BAXTER T. SMELZER, M. D., *Albany, N. Y.:*

Dear Sir—Enclosed herewith you will find petition to State Board of Health from residents of the towns of Pol Carroll and Kiantone, Chautauqua county, requesting your b to investigate what is known as the Conewango swamp, th which flows the Cassadaga and Conewango creeks. It is the contention of the petitioners that polluted waters from said creeks are detrimental to the public health. Will you kindly arrange for a meeting of the State Board of Health at which I can be present. You will recollect that I called at your office a few days ago with reference to this matter. Kindly inform me of the date of meeting when it is arranged. Thanking you in advance for this courtesy, I remain,

Yours very truly

F. R. PETERSON

ALBANY, *January* 26, 1900

FREDERICK R. PETERSON, *Jamestown, N. Y.:*

Dear Sir—I am in receipt of your communication of the 25th instant, with accompanying petition from residents of the towns of Poland, Carroll and Kiantone, Chautauqua county, requesting this Board to investigate as to the alleged unsanitary condition of what is known as the Conewango swamp.

In reply you are informed that the petition will be presented to the Board at the next meeting, notice of the time and place of which will be sent to you, that you may be present.

Very respectfully

BAXTER T. SMELZER

Secretary

To the State Board of Health, Albany, N. Y.:

Gentlemen—The state of New York appropriated $25,000 to aid in draining over 40,000 acres of swamp lands situated in the towns of Dayton, Leon, Conewango, Randolph and Cherry Creek, in the counties of Cattaraugus and Chautauqua, state of New York, and the waters from said swamps now flow into the Conewango creek which flows through the towns of Poland, Carroll and Kiantone, Chautauqua county, N. Y., and prior to the draining of said swamp lands Cassadaga and Conewango creeks overflowed the adjacent lowlands to an extent deemed injurious to the public health, and said conditions still exist, but to a greater extent owing to the increased flow of said swamp water into Conewango creek.

The undersigned, landowners and residents adjacent to low, wet and overflowed lands, conducive to the public ill-health, superinduced by polluted water from Conewango and Cassadaga creeks, within the towns of Poland, Carroll and Kiantone, county of Chautauqua, state of New York, hereby give notice that said waters are polluted to an extent deemed injurious to the public health by cause of the drainage of several thousand acres of swamp lands adjacent to the Conewango creek, and that by cause of the numerous bars and sharp, irregular curves of the channels, said waterways are unable to carry off the flow of water, hence the lowlands are flooded to an extent damaging to realty and injurious to the public health, producing unsanitary conditions prohibited by law, and said petitioners demand relief therefrom.

Said petitioners urgently request that said Board thoroughly investigate, by observation and inquiry, and take such action as will provide proper relief to said petitioners from the aforesaid conditions, and said petitioners request that said Board recommend the dredging and otherwise altering of Cassadaga and Conewango creeks within the towns of Poland, Carroll and Kiantone, to provide proper and ample channels in said waterways to drain the aforesaid lands and carry off the polluted waters hereinbefore referred to, the same being deemed necessary to the public health of the residents adjacent to said waterways.

And said petitioners further protest against any taxation or cost to the landowners by cause of said drainage.

T. J. Whitney, M. D., Carroll; K. A. Sweet, M. D., Carroll A. F. Blanchard, M. D., Carroll; John Venman, supervisor, Carroll; John Andrew, Carroll; M. T. Howard, Carroll; E. F. Fenton, Carroll; P. E. Miller, Kiantone; F. C. Field, Kiantone; Geo. C. Frissell, Kiantone; J. H. Adams, Carroll; Mrs. Hiram Adams, Carroll; Martha Allen, Carroll; Charles Doty, Carroll; C. E. Dodge, Carroll; A. M. Woodcock, town clerk, Carroll; F. W. Chase, Carroll; John Annis, Carroll; Andrew Bragg, Carroll; Jarvis Bellamy, Carroll; A. C. Bartling, Carroll; John P. Peterson, Carroll; Edward S. Lawson, Carroll; A. W. Little, Carroll;

F. E. Bennett, Carroll; Jefferson Frew, Carroll; Frans Johnson, Carroll; J. B. Putnam, Carroll; L. C. Colburn, Carroll; A. P. Anderson, Carroll; Wm. Townsend, Kiantone; O. C. Shaw, M. D., Kennedy; E. S. Rich, M. D., Kennedy; Herbert W. Davis, M. D., Falconer; A. D. Harris, Kennedy; H. S. Elkins, Kennedy; E. M. Cheney, M. D., Poland Center; W. B. Smith, Kennedy; L. B. Carter, Kennedy; Wm. Thomas & Son, Kennedy; Luther Lydle, Poland.

STATE OF NEW YORK,
COUNTY OF CHAUTAUQUA, } *ss.:*
Village of Frewsburg.

Personally appeared before me, a notary public in and for the town of Carroll, county of Chautauqua and state of New York, on this 8th day of November, A. D. 1899, T. J. Whitney, M. D., of Frewsburg, N. Y., who, being duly sworn according to law, deposes and says that he has practised the profession of medicine within said county for 32 years, and that within said period of years he has attended professionally over 300 patients suffering from malarial affections contracted, as he firmly believes, by cause of low, wet lands overflowed by the polluted waters of Conewango creek within the towns of Carroll and Kiantone, Chautauqua county, N. Y., and he further states that the dredging of the channel and removal of obstructions within said creek in the aforesaid towns is by him deemed necessary for the public health.

T. J. WHITNEY, M. D.

Subscribed and sworn to before me this 8th day of November, 1899,

FRANK F. MYERS
Notary public

STATE OF NEW YORK,
COUNTY OF CHAUTAUQUA, } *ss.:*
Village of Frewsburg.

Personally appeared before me, a notary public in and for the town of Carroll, county of Chautauqua and state of New York, on this 7th day of November, A. D. 1899, A. F. Blanchard, M. D., of Frewsburg, N. Y., who, being duly sworn according to law, deposes and says that he has practised the profession of medicine within said county for 11 years, and that within said period of years he has attended professionally over 70 patients suffering from malarial affections contracted, as he firmly believes, by cause of low, wet lands overflowed by the polluted waters of Conewango creek within the towns of Carroll and Kiantone, Chautauqua county, N. Y., and he further states that the dredging of the channel and removal of obstructions within said creek in the aforesaid towns is by him deemed necessary for the public health.

A. F. BLANCHARD, M. D.

Subscribed and sworn to before me this 7th day of November, 1899.

FRANK F. MYERS
Notary public

STATE OF NEW YORK,
COUNTY OF CHAUTAUQUA, } *ss.:*
Village of Frewsburg.

Personally appeared before me, a notary public in and for the town of Carroll, county of Chautauqua and state of New York, on this 7th day of November, A. D. 1899, K. A. Sweet, M. D., of Frewsburg, N. Y., who, being duly sworn according to law, deposes and says that he has practised the profession of medicine within said county for 10 years, and that within said period of years he has attended professionally over 15 patients suffering from malarial affections contracted, as he firmly believes, by cause of low, wet lands overflowed by the polluted waters of Conewango creek within the towns of Carroll and Kiantone, Chautauqua county, N. Y., and he further states that the dredging of the channel and removal of obstructions within said creek in the aforesaid towns is by him deemed necessary for the public health.

K. A. SWEET, M. D.

Subscribed and sworn to before me this 7th day of November, 1899.

FRANK F. MYERS
Notary public

STATE OF NEW YORK, } *ss.:*
COUNTY OF CHAUTAUQUA, }

Personally appeared before me, a notary public in and for the town of Poland, county of Chautauqua, state of New York, on this 13th day of November, 1899, O. C. Shaw, M. D., of Kennedy, N. Y., who, being duly sworn according to law, deposes and says that he has practised the profession of medicine within said county for 23 years, and that within said period of years he has attended professionally several patients suffering from malarial affections contracted, as he firmly believes, by cause of low, wet lands overflowed by the polluted waters of Conewango and Cassadaga creeks within the town of Poland, Chautauqua county, N. Y., and he further states that the dredging of the channel and removal of obstructions within said creeks in the towns of Poland, Carroll and Kiantone is by him deemed necessary for the public health.

O. C. SHAW, M. D.

Subscribed and sworn to before me this 13th day of November, 1899.

[Seal]

M. E. HERRICK,
Notary public

STATE OF NEW YORK, } *ss.:*
COUNTY OF CHAUTAUQUA, }

Personally appeared before me, a notary public in and for the town of Poland, county of Chautauqua, state of New York, on this 13th day of November, 1899, E. S. Rich, M. D., of Kennedy,

N. Y., who, being duly sworn according to law, deposes and says that he has practised the profession of medicine within said county for 13 years, and that within said period of years he has attended professionally several patients suffering from malarial affections contracted, as he firmly believes by cause of low, wet lands overflowed by the polluted waters of Conewango and Cassadaga creeks within the town of Poland, Chautauqua county, N. Y., and he further states that the dredging of the channel and removal of obstructions within said creeks in the towns of Poland, Carroll and Kiantone is by him deemed necessary for the public health.

E. S. RICH

[Seal]

Subscribed and sworn to before me this 13th day of November, 1899.

M. E. HERRICK
Notary public

STATE OF NEW YORK, }
COUNTY OF CHAUTAUQUA, } *ss.:*

Personally appeared before me, a notary public in and for th county of Chautauqua, state of New York, on this 25th day of November, 1899, Herbert W. Davis, M. D., of Falconer, N. Y., who, being duly sworn according to law, deposes and says that he has practised the profession of medicine within said county for 16 years, and that within said period of years he has attended professionally over 15 patients suffering from malarial affections contracted, as he firmly believes, by cause of low, wet lands overflowed by the polluted waters of Conewango and Cassadaga creeks within the town of Poland, Chautauqua county, N. Y., and he further states that the dredging of the channel and removal of obstructions within said creeks in the towns of Poland, Carroll and Kiantone is by him deemed necessary for the public health.

HERBERT W. DAVIS, M. D.

Subscribed and sworn to before me this 25th day of November, 1899.

HARLEY N. CROSBY,
Notary public

REPORT OF THE STATE BOARD OF HEALTH IN THE MATTER OF THE DRAINAGE OF CONEWANGO SWAMP, IN THE COUNTY OF CHAUTAUQUA, STATE OF NEW YORK.

MARCH 12, 1900

In pursuance of a resolution passed by the State Board of Health at its meeting in Albany, February 14, 1900, the undersigned committee, appointed for the purpose, visited Jamestown on Friday, March 2, 1900, and took testimony regarding the condition of Conewango swamp in its relation to the health of the residents of the district adjoining said swamp. Several physicians who reside in the towns of Frewsburg, Kennedy, Falconer and Jamestown, together with the supervisor and other residents of the town of Carroll and an engineer familiar with the conditions existing and those which formerly existed in a portion of said swamp before it was drained, were present and gave evidence. The medical witnesses testified to the physical conditions of the so-called lower swamp, which is located in the towns of Carroll and Kiantone, and which covers an area of something over 10,000 acres. It appeared from the evidence that fevers of a malarial and so-called typho-malarial type prevailed to an unusual degree in the vicinity of these swamp lands. These diseases are especially prevalent in the autumn after the very low water of summer and in the early spring. The testimony of Dr. Bemus, of Jamestown, and others also, established the fact that this swamp district is peculiar in this respect, as no malarial fevers exist in any other portions of Chautauqua county. All the other medical witnesses corroborated this statement. Evidence was also taken showing results of the drainage of the upper swamp, which was done by the state some years ago, where similar unhealthy conditions existed, but have been entirely relieved by the drainage. Many witnesses corroborated the statement which the petitioners to the State Board of Health had alleged, that the drainage of the upper swamp had aggravated the malarial conditions of the district under investigation, there being a more rapid discharge of water from the drained district, with no ready outlet for its relief. The health officer of the town of Carroll testified to the unusual death rate of 23 during the past year, in a population of about 1800.

Several histories of malaria and so-called typho-malarial fevers were submitted by physicians, which convinced your committee of the miasmatic conditions alleged to exist. Several hundre people who permanently reside within a mile or a mile and half of the borders of this swamp are affected by this conditio The evidence in full as taken at the hearing accompanies thi report.

Your committee find, after a careful consideration of all th evidence, that

1 The conditions existing in the territory adjoining the Conewango swamp are such as to constitute a nuisance detrimenta to the public health.

2 The committee also finds from an examination of the result of the drainage of the upper Conewango swamp that a simila system of drainage for the lower swamp will greatly mitigat the existing unhealthful conditions, if not entirely remove the

3 In view of these facts the committee recommends that suc drainage be made in this district.

Respectfully submitted.

DANIEL LEWIS
Committee

CITY OF POUGHKEEPSIE

POUGHKEEPSIE, N. Y., *February* 21, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Alban N. Y.:*

Dear Sir—I am directed by the board of health of the city Poughkeepsie to request the State Board of Health to send this city a representative to examine into and locate the cau

peop
half
The
repor

Yo
evide

1 T
wang
to th

2 T
of th
syste
the e

3 I
drain

Res

of a nuisance to at least one-half the city—a very bad odor of escaping gas.

Kindly act in this matter at your earliest convenience.

Yours truly

ELMER E. EASTMEAD

Secretary

SCHENECTADY, N. Y., *May* 7, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Agreeable to your instructions of March 13th, to investigate the cause of certain trouble in the city of Poughkeepsie arising apparently from the escape of illuminating gas, I beg to report as follows on my examination made on March 29th.

On reaching the city, I learned from Charles Fowler, engineer and superintendent of public works, and from Dr. James S. Wilson, health officer, the following circumstances: Early in February of the present year complaints were received by the city officials from a large number of residents living in widely scattered portions of the southern part of the city that strong smells of illuminating gas were being experienced both in the houses and in the yards. Though occurring quite simultaneously the number of complaints continued to increase till 54 such complaints had been received. At the same time a strong smell resembling illuminating gas was found in the sewers of the southern sewer district, so strong as to cause inconvenience to residents living near manholes and street catchbasins. The location of the houses whence complaints were received was quite widely scattered over the entire southern sewer district and appeared to bear no direct relation to the location of the gas works of the Poughkeepsie gas company, the only gas works in the vicinity. Under notification from Charles Fowler, engineer and superintendent of public works of the city, James H. Haddon, manager of the gas company, instituted a thorough search for leaks from gas mains without finding any that would at all account for the trouble.

Failing in this, a trench was dug along the side of the trunk sewer on Laurel street, opposite the gas works, so as to intercept any leakage of gas from the works into the sewer. While no appreciable amount of gas was found, the true cause of the trouble was discovered in a leakage of tank-liquor from the holder which is situated about 30 feet from the line of the sewer and several feet above it. Finding it not easily possible to locate the exact position of the leak or leaks, an intercepting wall was laid in a trench extending below the foundation of the basin of the holder and carried around the holder about two feet outside the foundation wall; the bottom of the intervening annular space was then concreted, a drain laid from this space into the regular gas works sewer, which is an independent sewer discharging directly into the Hudson river, and the annular space filled up, and it is believed that the cause of the trouble was thus removed, although the strong odors of gas have only gradually disappeared and still continue of a strong character in the sewers.

It remains to show (1) that the leak of tank-liquor fully accounts for all the odors as reported; (2) that the failure to stop the odors on the stoppage of the leaks of tank-liquors is fully accounted for; (3) that the occurrence of the odors in the residences indicates that defective conditions of the house-sewering exist at the places where odors were experienced. The accompanying map of the city furnished me by Superintendent Fowler shows the entire southern sewer district.

The crosses indicate the locaton of the complaints; the small circles in black placed on the red sewer lines indicate the location where ventilated manhole covers were placed by Superintendent Fowler to aid in relieving the sewers of the strong odors; the larger circles in black with a straight line across them indicate the places where airtight diaphragms were placed in the sewers by Superintendent Fowler to intercept the movement of air bearing the gas odors.

A leakage of gas into the sewer would have been indicated by odors only at points above the leak or at least in the direction of the movement of sewer air; whereas the leakage of the strongly odorous tank-liquor, not only furnished odor for points above the entry into the sewer, but by flowing down with the sewage to the outlet of the system filled the entire lower portion with the odorous liquor from which gas was given off to rise along all lines of sewers. The fact that most of the sewers have steep grades contributes to the distribution by insuring a rapid rate for the air travel up the lines of sewers. After the cause of the odors was discovered, Superintendent Fowler had the airtight diaphragms mentioned above placed at the points indicated on the map for the purpose of stopping as much of the air circulation as possible during the continuance of the odors. For the same purpose the perforated manhole covers were placed where indicated on the map.

The fact that the odors were not stopped as soon as the source of the trouble was removed is explained by the fact that the tank-liquor in question is very permeating and had evidently found its way into the crevices and joints in the brickwork of the sewers and had thoroughly coated the interior surfaces of the sewers. Until such accumulations are thoroughly removed by flushing of the natural flow of the sewers, it is natural to find the odors still remaining. Nearly all of the 54 complaints of odors came from houses or buildings having direct sewer connections. In Poughkeepsie, as in most but not all cities, service sewers are trapped either just inside or just outside the building wall. Had these traps been effective, or even if ineffective, had the interior sewering of these buildings been tight, as they should have been, no odors should have entered from the sewers, as no cases were reported where odors were discovered in closets or at sinks. There is another set of conditions known to exist in Poughkeepsie at certain houses, which account for the entry of the odors to the houses and premises but which also include the occurrence of defective sewering. In certain parts of certain streets the service sewers were excavated through rock and the trenches were refilled with the broken rock thus removed, leaving the material of the trench surrounding the sewer-pipe very open and permeable to either water or gases. It was also the custom quite general until recently in Poughkeepsie to lay such service sewers with open joints, that is, without cement or other joint filling. Given these two conditions, and a direct avenue for the gases or odorous sewer-air from the street sewer into the house exists, viz.: from the service sewer into the trench material through the loose joints, along the permeable trench material to the house wall; through the house wall around the sewer pipe which opening is never cemented up. These conditions also account for the odors occurring in the yards just outside certain houses. They indicate, however, quite as defective conditions as defective traps or leaking sewer joints inside houses, and both classes of defects should be remedied. The present occasion therefore should be taken advantage of to definitely locate and determine the exact means or route by which the odorous gas from the sewer entered the buildings, and the conditions thus discovered should be at once remedied, for the same means or route must have been in existence before the gas-liquor leak, and must have furnished ample opportunity for the admission to the buildings of the inodorous but not altogether innocent sewer air. The owners or occupants of the residences and buildings affected should therefore congratulate themselves on having been furnished by the gas company with unintentional but gratuitous "peppermint test" as a partial offset to the annoyance occasioned by the odors.

As a proof that the admission to the houses of the gas odors was exceptional and not general, it may be stated that in the district whose sewers were filled with the strong odor for days there were some 900 sewer connections, but only 54 of these suffered from the odors.

I may also state that there were two or three cases of odors at houses having no sewer connection, but that in each case there were either old drains or water trenches filled with loose broken rock leading directly from the line of the sewer into the cellars.

I beg to recommend that the local authorities be advised to utilize the indications which these odors furnished in ascertaining and in having remedied the sanitary defects at the several premises affected.

Very truly yours
OLIN H. LANDRETH
Consulting engineer

CITY OF WATERVLIET

Water supply

WATERVLIET, N. Y., *January* 29, 1900

BAXTER T. SMELZER, *Secretary State Board of Health:*

Dear Sir—Your communication of the 26th instant to the board of water commissioners of Watervliet, N. Y., received and placed on file. The said board of water commissioners has resolved not to audit any bill or claim for the water supplied to this city by the West Troy water works company since December 1, 1899, for the reason that the supply of water and pressure maintained is entirely inadequate for protection against fire, and the quality of said water is impure and unwholesome and dangerous to public health and constitutes a public nuisance. This board is using every effort to secure an independent supply of pure water for this city, within the powers conferred upon it by chapter 906, laws of 1896, and it cordially invites the cooperation of the State Board of Health and the exercise of its power and authority in the premises; and to that end a committee of this board has been appointed and will wait upon the secretary of the State Board of Health and present in detail a statement of the conditions existing in this city relative to its present water supply.

Yours respectfully
THOMAS H. CAVANAUGH, *Clerk*

COPY OF RESOLUTION PASSED JANUARY 29, 1900

Resolved, That this board will not audit any bill or claim for water furnished by the West Troy water-works company for water supplied to the city since December 1, 1899, for the following reasons: First, the quantity of water and the pressure maintained has been entirely inadequate for protection against fire; second, the quality of the water supplied to public and private consumers is impure and unwholesome and dangerous to public health, and constitute a public nuisance.

Adopted by full vote of board.

WATERVLIET, *January* 24, 1900

Commissioners of State Board of Health:

Dear Sirs—At the request of citizens of this place the enclosed document has been prepared and has been entrusted in my care with instructions to forward to your office. If we had time to circulate this document we could secure scores and hundreds of signatures as you can well understand. Kindly look into this matter at your earliest convenience and let us know what can be done.

Very truly

J. E. WILLIAMS

To the Honorable Board of Health Commissioners, Albany, N. Y.:

Dear Sirs—Again there is great indignation in this city because of the foul water supplied to residents by the West Troy water company, a private concern that charges exorbitant rates for a miserable service. This week, and it is not the first time this winter, the water company turned on the water from what is known as the old reservoir. This water for several days has been forced through the pipes and into the homes of the people of this community. It is scarcely necessary to state that the water is not fit for any household purpose. The water company admits this, but at periodical times asks the people's pardon for turning on the floodgates of this disease-laden reservoir. The water drawn from the faucets in many homes in Watervliet since last Sunday, January 21st, is positively filthy. It is dirty and muddy in color, of a vile odor and contains a sediment that altogether makes it very obnoxious. A quart of the water drawn early this week was allowed to settle, and at the expiration of a few hours a cake of mud or clay formed at the bottom of the vessel. And our people are supposed to put up with this sort of thing, if not without complaint then with a patience that has long ceased to be a virtue. An item appeared in one of the daily papers this week that Water commissioner John Graham, of this city, had on exhibition a bottle of water drawn from the faucet in his store which was positively filthy. The publication of this item gives prominence to the complaints heard on every side. Up to date, however, no successful effort has been made looking to compel the water company to do the right thing by the people or else go out of business. It is only 10 days or two weeks ago that the residents of a portion of the city complained of the want of pressure on the water mains. They were afraid in case of fire the pressure would be so slight as to render the fire department of no avail. These complaints are no new thing; they have been heard in one form or another for years. The West Troy water company has the upper hand. It virtually says to the consumers: "Pay us our price for this filthy water or we will shut you off from receiving water when a purer supply is available." The company is arbitrary; it makes its own rules and establishes rates that are not in keeping with the service. Will the State Board of Health Commissioners tell us what can be done to regulate this water business in our city and secure what everybody so much desires—a supply of pure water. With this we send you a quart bottle of "water" to show you the nature of the stuff that has been poured into our homes this week. The sample of "water" we send you is from a faucet on Nineteenth street in Watervliet. After viewing the sample can you blame us for finding fault and appealing to the state for assistance?

J. E. WILLIAMS
CHARLES OOTHOUT
H. D. PIERCE
JOHN MACKENZIE
HERMAN A. WOLFRAM
JAS. B. EGAN

ALBANY, *February* 8, 1900

Hon. CAMPBELL W. ADAMS, *Consulting Engineer State Board of Health, Utica, N. Y.:*

Dear Sir—I enclose herewith papers in a complaint made by J. E. Williams and others concerning the quality of water being supplied to the city of Watervliet by a private corporation known as the West Troy water company.

In addition to the complaint enclosed, Hon. M. J. Day, mayor of the city of Watervliet, with several representative citizens of that municipality, made a verbal complaint concerning the alleged impurity of the water being supplied to their city, and requested that one of the consulting engineers of this Board visit Watervliet for the purpose of making an investigation.

In view of the complaints received by this Board, you are requested to visit the city of Watervliet at your earliest convenience for the purpose of investigating as to whether or not the water being supplied to that city is of such a quality as to be detrimental to health.

It is suggested that such samples as you may desire to have analyzed be sent to Professor Tucker for that purpose.

The old reservoir referred to in the complaint is one which was condemned by this Board upon an investigation made some years ago.

Your bill for services and expenses in connection with the investigation will be paid by the State Board of Health.

In submitting your report return the enclosed papers.

It might be well for you to notify Mayor Day, also Dr. E. J. Hanratta, as to when you can make the investigation.

Very respectfully
BAXTER T. SMELZER
Secretary

REPORT

UTICA, *March* 8, 1900

HON. BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—The papers sent me in connection with the complaint of citizens of Watervliet concerning the quality and quantity of water furnished them by the West Troy water works company are herewith returned, and in connection therewith I have to report as follows:

SOURCES OF INFORMATION

My information is from interviews with J. E. Williams, Mayor M. J. Day, Water commissioner H. C. Becker, president, Messrs. Fogarty, Graham and Covert, Cashier Phelps of the West Troy national bank and Superintendent Winslow of the water-works company, and from an inspection of the two reservoirs and the pumping plant at Dunsbach's ferry.

SAMPLES FOR ANALYSIS

Three samples of water have been sent to Dr. Willis G. Tucker for analysis. These are:

No. 1 from the old reservoir;

No. 2 from the new reservoir;

No. 3 from a faucet in the water-works company's office, being water from the old reservoir.

WATER SUPPLY

The water supply is from the Mohawk river near Dunsbach's ferry, where two pumps actuated by turbine wheels are supposed to work day and night. These pump the water through about five miles of 12-inch and 16-inch main into a new distributing reservoir about one mile west of the city of Watervliet. When full, this reservoir overflows into the old reservoir, 24 feet below the new one and about 600 feet distant therefrom, toward the city. The distributing main from the new reservoir has a branch connecting it with the old, but equipped with a shut-off gate. Both reserviors can be shut off so that the distributing mains can be supplied directly from the pumps.

RESERVOIRS

The new reservoir was built in 1898. Its flow line when full is about 200 feet above the main portion of the city, equal to a pressure of about 80 pounds. This reservoir is well riprapped or paved inside and receives no surface water whatever. Its capacity is said to be 10,000,000 gallons, but citizens say it is only adequate for three days' supply. The population is about 15,000. This reservoir receives and gives out water direct from the Mohawk river and in just such condition of purity as the river affords at the time. No attempt at intermediate purification has been made.

The old reservoir was built in 1876. Its flow line when full is about 176 feet above the main portion of the city, equal to a pressure of about 70 pounds. Its capacity is said to be 45,000,000 gallons. It receives the drainage from about 100 acres, about half of which are cultivated and on which are three series of farm buildings, each located about a quarter of a mile from the reservoir. It is totally unprotected either by paving or fencing. This reservoir was condemned by your Board several years ago principally because a slaughter-house on its banks drained directly into it. This nuisance, however, has long since been eliminated and the building is now used as an ice-house.

THE COMPLAINTS

The complaints of the citizens are quite numerous and of long standing, and while practically all of them are apparently well justified, there are as usual two sides to each of the points at issue, both of which I will endeavor to outline in the order of their prominence.

(1) The primary complaint is that the company continues to furnish part, and frequently all, of the supply from the old reservoir, concerning which there is a decidedly popular prejudice. This is based on the condemnation by your Board as hereinbefore stated, on the alleged foul smell of the water when drawn from the faucets and compared to that from the new reservoir; on the fact that men and cattle bathe therein, access being easy because of no fencing; on the unprotected condition of the shores which helps to make the water roily when the wind blows, and on the assumption that because its waters are sometimes not used for considerable periods of time they must be stagnant.

The position of the company regarding this complaint is that it only uses the water from the old reservoir at such times as it can not keep up the supply from the new reservoir, either from the failure or inadequacy of the pumps or the roily condition of the Mohawk river.

(2) The second complaint is that while the pumps are probably of sufficient capacity, the turbine wheels which actuate them are

too small to develop their full capacity; that these wheels are too frequently flooded and thereby rendered less efficient because of the condition of the tail-race, which might be improved by blasting out some rock, and that but for these reasons a sufficient supply might always be available directly from the river or the new reservoir, concerning the quality of which no complaint is made.

The company's superintendent admits the justice of these complaints, but alleges that the per capita consumption is far in excess of what it should be; that the users being almost unanimously antagonistic to the company are very careless, sometimes maliciously so, about using the water reasonably, and that it is seemingly impossible to prevent undue waste beyond reducing the pressure, which is done by partially closing the gates connecting the mains and reservoirs. The reason why the turbines and tail-race are not enlarged will appear hereinafter.

(3) The third complaint is that the pressure ordinarily maintained is inadequate to supply the second floors, which usually contain the water-closets, of many houses in the more elevated parts of the city, and that the company fears to carry a higher pressure because of the condition of its conduits, many of which are of an antiquated sort of pipe made of a thin sheet of iron, protected inside and out by from four to five inches of cement. The first charge is doubtless true for certain intervals, but the latter is at least doubtful.

The pressure is manipulated as before stated, and I am satisfied that its sole object is to conserve the supply, but it fluctuates considerably during working hours. In case of fire telephonic communication is had with a man living near the gates which are used to manipulate the pressure, and by opening the gates from the old reservoir a pressure of about 70 pounds is made available.

When the whole plant is in good working order a satisfactory pressure is maintained; when for any reason the supply gets low the pressure is reduced.

So far as the condition of the conduits is concerned, the records of pressures they have safely carried is the best evidence of what they are capable of withstanding. A record is kept at the police station, consisting of from six to 10 gauge readings each 24 hours. These show the following, the averages, however, being only approximate:

Month	Highest pressure	Lowest pressure	Average	Remarks
1899				
January	89	52	60	Shut off first, second and third.
February	....	....	....	Gauge being repaired; no records.
March	80	9	73	9 lbs. was only for a few hours.
April	83	62	75	
May	86	65	75	
June	84	50	70	Shut off once.
July	80	58	70	
August	82	22	50	
September	70	15	40	
October	79	23	45	Shut off once.
November	68	39	50	
December	75	29	45	
1900				
January	70	18	35	
February	70	38	45	

Pipes carrying the above pressures and only requiring to be shut off, for any reason, three times in 14 months, may not be good, neither do they appear to be dangerous.

(4) The fourth specific complaint is that while the city is steadily growing, the company has for a long time refused to make new extensions of its mains, so that now many houses and some streets are wholly unsupplied with water, and that some house owners have been compelled to lay very long service pipes around into adjacent streets in order to obtain a supply.

This condition is said to be, and unquestionably is, seriously detrimental to the city's interests if not to the health of its people. The statement is made that while the city has 18 miles of sewers, it only has 12 miles of water mains.

The position of the company respecting this complaint and that concerning the betterment of its pumping plant is that under the existing peculiar circumstances it does not feel justified in putting any more money into the plant, at least until some more definite understanding as to the future can be effected. There appears to be considerable justification for this position *at the present time*, but this is regardless of what should have been done in the past.

THE COMPANY AND WATER COMMISSIONERS

The peculiar conditions involved in this case are briefly as follows: The company began work about 25 years ago, and in the meantime six different series of mortgage bonds, said to aggregate par value of about $500,000, have been issued. One series is said to be illegal and one or two other series are confused with the Green Island water-works, which in turn has some of its bonds confused with the West Troy company. The various bondholders after many difficulties have lately been brought more nearly together by the purchase of certain series of these bonds by the holders of other series. Probably at present it would be impossible for the company to give a satisfactory title to the plant if sold, and this question may also be involved in any lease or contract that might now be made. The contract under which the city and company operated for many years expired over a year ago and has not since been renewed for reasons that will hereinafter appear. In the meantime the company has been placed under a receivership, and presumably the question of proper authority to sell, lease or make new contracts will soon be determined.

The dissatisfaction of the people, which usually accompanies private ownership of a city's water supply, culminated in 1896 by the enactment by the legislature of chapter 906, which created a board of water commissioners with authority to investigate and plan for a new water supply, either by acquiring the whole or part of the present system or by securing a supply from a different source, even in "adjoining counties". This law also empowered the commissioners "until such time as the city of Watervliet shall own a system of water-works in full operation" to contract with the existing company for a public supply, but the duration of such contracts was *limited to one year each*, at $10,000. It also limited the expense for a new plant to $250,000.

Pursuant to this law surveys, plans and estimates were made for a gravity supply from a source opposite the city in Rensselaer county. The people by vote as directed by this law approved this proposition by a large majority, when to further complicate matters the village of Lansingburg claimed and actually bought part of the watershed intended to be acquired, and as further effort in this direction appeared to involve tedious and costly litigation, it was abandoned and nothing further has been done except to attempt to conclude terms with the present company for the purchase of its plant or a new contract. This disclosed that no one had the requisite authority to sell and give proper title. The $250,000 is still available. The question of a contract was then considered, but as the water commissioners in this connection practically insist (1) on better pumping facilities so as to obviate the necessity of using the old reservoir; (2) on considerable extensions to the mains, and (3) on higher pressure, nothing has been accomplished because the company feels it is not justified in putting a large additional sum into its plant for one year's contract, after or during which time the commissioners, by exercising their powers, as they have tried to do, may render the present plant almost valueless. Moreover, the company feels that the prevailing prejudice against it is being used to belittle the value of its plant with a view to its future purchase or condemnation at low figures.

CONCLUSIONS

Whatever the present difficulties may be so far as the company's affairs are concerned, one fact stands out boldly, viz.: That the people have for many years paid the company in rentals a good return on the cost of the plant if it had been properly capitalized. They could not be expected to do more than this. Meantime the city has grown and its needs of more water have multiplied. Instead of increasing the capacity of the plant to keep pace with the city's growth, the income of the plant appears to have been applied more particularly for the benefit of the bondholders.

The present source and method of supply are probably the most economical available for the city; hence whether the plant continues to be operated by the company or whether it shall be hereafter acquired by the city, an improvement in the acknowledged inadequacy of the pumping plant would seem to be not only desirable and necessary, but also promising of proper financial remuneration directly or indirectly.

This offers the quickest solution of the main difficulties, hence I recommend that if possible the company be prevailed upon to install new and larger turbine wheels and improve the tail-race therefrom. The present pumps are old and somewhat worn. They may also soon be found to be inadequate, but such a contingency can be met as it arises.

A sufficient increase in power at the pumping stations in water wheels or pumps, or both, will permit the maintenance of a full supply at all times in the new reservoir.

Hence there will be no need to use the water of the old reservoir, and that complaint will have been met.

With such a full reservoir the pressure can be maintained in the distributing mains to a reasonable amount and the complaint of too low pressure will have been met.

The one unsolved question remains, is the water of the Mohawk river at the point of intake fit for a domestic supply without purification?

It is polluted by the raw, unpurified sewage from every city and village in the Mohawk valley. Even though this amount of pollution be diluted to such an extent as to render the water not positively dangerous for potable purposes, it is not as good water as the city of Watervliet can and should obtain.

Moreover, aside from the question of pollution by sewage, the water is so turbid in times of freshet as to be unfit for use, and the size of the new reservoir is entirely inadequate for a storage supply during such periods. It is also reasonable to suppose that both of these conditions will grow worse instead of better with the lapse of time.

The analyses of the three samples of water hereinbefore mentioned are now available from Professor Tucker and are as follows:

Analysis number	542	543	544
Sample number	1 (Old reservoir)	2 (New reservoir)	3 (From faucet; old reservoir turned on, new one off.)
Appearance—Color	Yellowish	Smoky tint.	Yellowish.
Sediment	Considerable, but less than in 2 or 3.	Considerable, and more than in 1 or 3.	Considerable; more than in 1, but less than in 2.
Turbidity	Opalescent	Permanently turbid	Applies to each sample.
Odor at 100° F	Aromatic and peculiar Apparently due in part to corks used and perhaps to jugs.		Slight
Chlorine in chlorides	3.70	0.20	0.25
Free ammonia	0.2120	0.0053	0.0080
Albuminoid ammonia	0.2270	0.0295	0.0260
Nitrites	Present	None	None
Total solids	19.60	13.20	11.80
Loss on ignition	5.20	3.40	3.20
Mineral matter	14.40	9.80	8.60

Behavior during ignition.—Each sample blackened and evolved some odor.

Remarks (1)—Unsatisfactory and unfit for domestic use in this condition.

Remarks (2)—Color, appearance and odor unsatisfactory and albuminoid ammonia high, but in other respects much better than No. 542, and not very different, though somewhat inferior, to No. 544.

Remarks (3)—Color and appearance unsatisfactory, but in other respects much better than No. 542 and not very different, though in most respects much superior to No. 543.

Results are in parts of 100,000.

It is interesting to note that the best analysis is from water drawn from a faucet at a time when the new reservoir had for some time been shut off and the total supply was being taken from the old reservor. In this connection it is but proper to say that the old reservoir water was decidedly clearer than the new when the samples were taken. Being covered with ice and left for a long time free from disturbing sources, its waters had an excellent chance to clarify by precipitation.

However, all the analyses show that none of the water is of the best and I am therefore constrained to add a further suggestion. A study of the topography within eight or 10 miles of Watervliet will show that the present source of supply is probably the one that must be permanently utilized. This supply will never be good till it has been artificially purified.

An opportunity for the installation of a suitable filtering plant is easily available between the new or upper reservoir and the summit of the hill over which the water passes on its way thither from the pumps, the difference in elevation between this summit and the new reservoir being about 100 feet.

I believe such a scheme must be adopted before Watervliet obtains a proper water supply.

Respectfully

C. W. ADAMS

Consulting engineer

ALBANY, *May* 7, 1900

Hon. M. J. DAY, *President Board of Health, Watervliet, N. Y.:*

Dear Sir—In compliance with instructions given at a meeting of this Board held April 27, 1900, I enclose herewith copy of a report made by C. W. Adams upon his investigation of complaints made by residents of Watervliet concerning the quality of water being supplied to that city.

Very respectfully

BAXTER T. SMELZER

Secretary

ALBANY, *May* 7, 1900

West Troy Water-Works Co., Watervliet, N. Y.:

Gentlemen—In compliance with instructions given at a meeting of this Board held April 27, 1900, I enclose herewith copy of report made by C. W. Adams upon his investigation of complaints made by residents of Watervliet concerning the quality of water being supplied to that city.

Very respectfully

BAXTER T. SMELZER

Secretary

TOWN OF DANUBE

Indian Castle station

To the State Board of Health of the State of New York:

The undersigned residents and inhabitants of the town of Danube, county of Herkimer, N. Y., resiring in the vicinity of the nuisance hereinafter mentioned and described, do hereby make complaint to your honorable body pursuant to section 7 of the Public health law, as follows:

There is now and for several years last past have been pools of stagnant water lying along the Erie canal and on the southerly side thereof in the town of Danube aforesaid, which water reaches said pools from percolations or discharges from the Erie canal and through its banks, and also gathers in said pools by reason of the stoppage of culverts which formerly existed under the canal at a point near the largest pool of stagnant water which exists at the points mentioned. The stagnant pools herein complained of are situated on lands adjoining state lands on farms of Charles Doxstater, Marvin A. Jones, Fred. Waltemath, Rufus Smith and others, located about one mile east of Indian Castle station on the West Shore railroad.

These complainants allege upon information and belief that the said stagnant pools are injurious to the public health, and that they have caused and are now causing disease and sickness to the inhabitants of the vicinity where said stagnant pools are located.

These complainants make the following specifications:

Mrs. Maria Jones is a great sufferer from malaria caused, as these complainants allege, by said stagnant pools. Has suffered from same for several years. Charles Doxstater also suffers from same desease from same cause.

Douglas Hillegas has suffered for years from malaria and now suffers therefrom. All have been advised by their physicians that same is caused by the stagnant pools aforesaid.

ne William Aldick, a farm laborer, employed by Grant Shull, lately had a severe attack of typhoid fever caused by said sance.

hese complainants further allege that many other cases of ase and sickness have occurred and now exist in the vicinity aid stagnant pools which have resulted directly from said sance; that all the members of the family of Charles Doxler are ill from malarial troubles resulting from said stagt pools; that a member of the family of Douglas Hillegas, ıed Betsy Van Alstine, is suffering from malarial troubles ılting from said nuisance.

Therefore your complainants respectfully pray that your orable body immediately examine into the facts and circumces of said nuisance as provided in section 7 of the Public lth law. They ask immediate attention to save the lives procure the public health of the inhabitants in the vicinity aid nuisance.

EDWIN P. SMITH
CHARLES DOXSTADER
DOUGLAS HILLEGAS

ATED *August* 15, 1900

TE OF NEW YORK, } *ss.:*
OUNTY OF HERKIMER,

dwin P. Smith, Douglas Hillegas and Charles Doxstader, g duly and severally sworn, each for himself, says that he is mplainant in the foregoing complaint signed by him, and that complaint is true to the knowledge of complainants except o the facts therein set forth upon information and belief, and as to those matters he believes it to be true.

EDWIN P. SMITH
CHARLES DOXSTADER
DOUGLAS HILLEGAS

ubscribed and sworn to before me August 15, 1900.

HADLEY JONES,
Notary public, Herkimer county, N. Y.

IN THE MATTER OF THE COMPLAINT OF CITIZENS OF DANUBE TO STATE BOARD OF HEALTH.

STATE OF NEW YORK, } *ss.:*
COUNTY OF MONTGOMERY, }

C. C. Vedder, being duly sworn, says he is a practicing physician residing at St. Johnsville, N. Y., and has practiced his profession 26 years; that he has read the attached complaint of Edwin P. Smith, Charles Doxstader and Douglas Hillegas and verily believes the same to be true; that deponent has attended as physician Charles Doxstader, his wife and daughter, also Malm Van Slyke, who lives in said Doxstader's family, also Douglas Hillegas and Betsy Van Alstine, and given said persons medical care and attention for malarial diseases. Deponent verily believes the sickness of each and all of said persons was caused by stagnant pools of water, and that said nuisance should be abated at once.

C. C. VEDDER, M. D.
St. Johnsville, N. Y.

Subscribed and sworn to before me August 15, 1900.

J. E. SMITH
County clerk

IN THE MATTER OF THE COMPLAINT OF CITIZENS OF DANUBE TO STATE BOARD OF HEALTH

STATE OF NEW YORK, } *ss.:*
COUNTY OF HERKIMER, }

William Tibbitts, being duly sworn, says he is a practicing physician residing in Danube in said county and state, and has so resided and practiced for 32 years; that deponent verily believes that the complaint of Edwin P. Smith, Charles Doxstader and Douglas Hillegas is true; that deponent has personally known for many years of the existence of the stagnant pools of water mentioned in the complaint and believes that the same have caused much illness in the vicinity.

Deponent further says that he has treated Mrs. Maria Jones, Charles Doxstader and others residing in the vicinity of said pools for malarial troubles and illness which deponent verily believes was caused by said stagnant pools; that the same, in deponent's opinion, should be speedily abated.

WM. TIBBITTS, M. D.
Newville, N. Y.

Sworn to before me this 20th day of August, 1900,
MARVIN A. JONES
Justice of the peace

ALBANY, *August* 24, 1900

Hon. JOHN N. PARTRIDGE, *Superintendent of Public Works, Albany, N. Y.:*

Dear Sir—I have the honor to transmit herewith copy of a complaint received from Dr. William Tibbitts, health officer of the town of Danube, in which it is alleged that a nuisance is caused in the town of Danube by reason of percolations or discharges from the Erie canal at a point near Indian Castle station on the West Shore railroad.

It is requested that you cause an investigation to be made as to the conditions complained of, and, if found to be as stated, that you cause them to be remedied.

BAXTER T. SMELZER
Secretary

ALBANY, *September* 21, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Replying further to yours of August 25th in the matter of the complaint of the health officer of the town of Danube about an alleged nuisance in that town, I beg to say that I have had the matter carefully investigated and have received a very full report, a copy of which I enclose herewith.

From this it seems to me that there is grave doubt whether the state is at all at fault in relation to this matter.

You will please note the suggestion in the last paragraph. I have given directions to have that test made when the water is drawn from the canal.

Yours very truly,
JOHN N. PARTRIDGE
Superintendent of public works

(Copy)

ROCHESTER N. Y., *September* 13, 1900

J. NELSON TUBBS, *General Inspector:*

Dear Sir—I herein report relative to the communications from Dr. Baxter Smelzer, Secretary of the State Board of Health, under date of August 25, 1900, and the complaint of Edwin P. Smith, Charles Doxstader and Douglas Hillegas.

The complaint of said Smith, Doxstader and Hillegas sets forth that the water from the Erie canal leaks through the canal bank, forming pools of stagnant water which are injurious to the public health and have caused and are causing disease and sickness in that vicinity.

I examined the premises yesterday, which are located on the berme side of the canal, and from one to one and a half miles east of Indian Castle station, and hereto attached submit a map thereof and memoranda.

There are three small ponds in question with more or less of vegetable growth in them, consisting of flags, grass and a small plant about one-eighth inch in diameter which floats on the surface of the water, but at a short distance therefrom looks like frog spittle.

The surface of the water in each pond is lower than the surface of the water in the canal, the west pond being two feet lower, and all are separated from the canal by a very heavy embankment carrying the double tracks of the West Shore railroad.

The ground rises from the ponds to the south for a long distance and the entire watershed is drained into them, and having no outlet the water collects and has to soak slowly away. The water in the ponds is much clearer than that in the canal, showing no indication of its being canal water and I do not think it is, but rather storm water delivered from the adjacent hills. A much more serious cause for complaint is the pig-pen located near the house of Charles Doxstader, which may have much to do with the alleged sickness in that locality.

I recommend that the pools in question be examined after the close of navigation when the water has been drawn from the canal. If they exist at that time it will but confirm my present impression that the canal is not responsible for their existence.

Respectfully yours
OSCAR H. PEACOCK
Inspector

ALBANY, *September* 24, 1900

WILLIAM TIBBETS, M. D., *Health Officer, Town of Danube, Newville, N. Y.:*

Dear Sir—For your information we enclose herewith copy of a report received from Oscar H. Peacock, inspector, in the department of public works, upon his investigation of a complaint made by residents of the town of Danube concerning an alleged nuisance caused by leakage from the Erie canal.

Very respectfully
BAXTER T. SMELZER
Secretary

VILLAGE OF BROCKPORT

BROCKPORT, N. Y., *August* 11, 1900

State Board of Health, Albany. N. Y.:

Dear Sirs—Kindly investigate the sewerage of the village of Brockport. It is in abominable condition. For particulars write P. F. Swarts, president of village, or W. B. Prentiss, chairman of board of health.

Very respectfully
G. E. LOCKE

BROCKPORT, N. Y., *August* 16, 1900

New York State Board of Health:

Dear Sirs—Your communication came yesterday. Dr. Locke is correct in the main in his statement regarding sewerage in this village. We have no sewerage for the entire village, only a partial drainage from a few streets, the main of which runs by Dr. Locke's residence, but it is covered. The house drains along the line, however, connect with it and we find that quite a number have connected with this sewer for closet purposes. Herein lies the trouble. The question is one that has baffled us for some time, and we feel that we cannot settle the difficulty without some action from higher authority. First, the question of a general sewerage for the entire village has been discussed, but we have no convenient place to drain. Again, it seems quite a question to decide how to prevent private sewage from emptying into the pipes we have. Would it not be well for you to send a man here to consult with our authorities and advise in this matter? The state normal school here drains into the sewer we have and this pollutes it to quite an extent, and their demands are enlarging. On this account also is it not a matter for your consideration?

Our village president, Mr. Swarts, has agreed to write you to-day, and you may perhaps better understand our situation from him.

Most respectfully

W. B. PRENTISS

BROCKPORT, N. Y., *August* 13, 1900

State Board of Health, Albany. N. Y.:

Dear Sirs—We, the undersigned, residents of the north part of the village of Brockport, N. Y., respectfully call your attention to a sewer or open ditch located in our part of said village.

This sewer starts from a leakage or overflow from the Erie canal in the eastern part of the village, and runs northwesterly for about 200 rods and empties into a stream or creek on the north side of Liberty street. The sewer is open for its entire distance, except where it crosses under said street, and of course receives the drainage from all of the adjoining property. Many privies and barnyards drain into the same. Several privies deposit their contents directly into the ditch. Naturally it is in a very unsanitary and dangerous condition.

This is the same sewer mentioned in one of the petitions or recommendations of the local board of health and approved by our board of trustees which was forwarded to you sometime ago for your consideration.

Perhaps your body has already taken some action to cause in some way an abatement of this nuisance, but if not we would most respectfully request that you do so at the earliest possible moment.

Respectfully

WILLIS C. COOK, M. D.
D. RICHARDS
W. B. PRENTISS
Local board of health
P. H. CUNNINGHAM
H. P. CRANDALL
J. W. CUNNINGHAM
MISS HELEN THOMPSON
J. W. DUFFY

UTICA, *September* 17, 1900

HON. B. T. SMELZER, *Secretary State Board of Health:*

Sir—On a recent date you sent me a communication from Dr. Locke, of Brockport, N. Y., which complained of the inadequate sewers of a portion of Brockport. With it you sent a letter from W. B. Prentiss, president of the village board of health, which was somewhat explanatory of the conditions complained of by Dr. Locke. You directed me to visit Brockport and report upon the situation.

I have the honor to submit the following report:

September 11th I went to Brockport and met the president of the board of trustees, Mr. Swarts and with Mr. Prentiss and others of the board of health quite fully inspected Brockport with reference to its sewerage conditions.

Brockport is an incorporated village with a population of about 4500 people. Its topography is rolling. The Erie canal passes east and west through the middle of the town. From the southerly part of the village a distinct depression or swale passes in a northerly and westerly direction to the canal; thence across the canal and continuing an easterly and northerly direction to and beyond the village limits. In this swale runs a small brook covered in general, but in spots an open channel. North of the canal it receives a varying quantity of waste water from the canal from a waste-weir provided for the purpose. The amount of this waste water from the canal is considerable at all times, and the brook in the northerly part of the village is usually "bank full."

The main street of the village, its business street, and some of the chief residence streets have sewers or drains in them, built primarily to carry off storm water; but they are used for house sewage as well. They lead into the above little stream, and where it is an open channel the little water running south of the canal is visibly polluted with sewage.

A few hundred feet westerly of the main street a stone culvert carries the sfream under the canal. Discharging over the breast wall at the entrance of this culvert is an iron pipe sewer about 8 inches in diameter, carrying the sewage from the state normal school. This school has about 700 population, and a large addition to the school buildings is now being erected. Dr. Eugene Smith described to me quite fully the provisions for its sewerage. There are three water-closets for more or less private use in the older buildings. For general use ordinary vaults are provided and the contents removed as required. The kitchen and laundry wastes discharge through the mentioned iron pipe. For the new building it appears impracticable to provide any sewer using as its outlet the old outlet pipe, and the normal school authorities want to drain into the covered brook I have mentioned. This covered brook is a structure with stone side walls, no bottom but the earth and stone or plank cover. It is not adapted for a sewer and is quite unfit for such use by the normal school or by the village residents.

Brockport is apparently a thriving, prosperous village. The health of its citizens is good. It has not had an epidemic of typhoid or other fevers. Its immunity, however, from these diseases is not due to its sewer system. It has none. But some of the conditions I observed are astounding as existing in a modern American town. An instance: A considerable livery stable on the main street and extending through to a back lane running parallel with the street is without drainage and the stable wastes gather and remain on the surace of the ground and on the lane, and the excess runs over onto the yard of a very good dwelling adjoining. This same land is lined with outhouses, the vaults of which are shamefully neglected, the contents exposed to the open air and sunlight. The wastes from sinks discharge directly into the lane in one or two instances. These things are in the heart of the town. In the residence portions the houses generally have ample grounds, and these nuisances are not so apparent. The ordinary vault prevails and the kitchen wastes are thrown on the ground in some obscure corner. Modern water-closets are rare, though the town has a good public water supply, not owned by the municipality. I was informed that the people generally use the public water, and such use to some degree accounts for the good general health of the people. But should a few cases of typhoid or other like diseases occur, it is extremely probable that they would rapidly multiply and their cause be assigned to the conditions described.

In view of the sanitary necessities of the state normal school and the straits it is now in to meet them; heeding the expressed complaints of some of the physicians of the village; knowing the emphatic opinion of some of its citizens who want a different state of things, the village board of health and the village trustees should begin at once to provide a comprehensive system of sewers. The first step is to engage a competent engineer to make a survey of the village and prepare sewerage plans. The survey would reveal where the main outlet should be located, and its terminus would be the location of the sewage disposal works. The survey would enable the engineer to determine on the kind of sewage purification plan to use. A septic tank in connection with filtering beds seems applicable. No further legislation is needed for such sewerage plans and estimate of cost. However, since the normal school is very much interested, the state should bear some of the expense, and it may be that the authorities controlling the expenditures now being made in the new school buildings could apply some of the funds toward this purpose in conjunction with the board of trustees of the village. Such action was had in a similar case at Fredonia.

With the estimates of cost in hand and the sewage needs of the normal school defined, the village authorities and those in charge of the school could secure next winter the legislation needed to provide the funds.

The action which the State Board of Health should take in the premises might assume some such form as this:

Whereas, Formal written complaints of the unsanitary condition of the village of Brockport relative to the disposal of its sewage wastes have been made to this Board, and not only the justice of the complaints has been shown by an examination and report by one of the Board's consulting engineers, Campbell W. Adams, but such a total lack of proper sanitary arrangements for a community as large as Brockport is shown to exist that, in the opinion of the State Board of Health, it is the immediate duty of the local board of health to take such action as the law provides to remove the causes of the complaints. And as this said report sets out the pressing needs of improved and adequate sewers for the Brockport normal school, a state institution, the state should assist and join with the board of trustees of Brockport in providing a complete and thorough remedy.

Resolved, That a copy of Mr. Adams's report and of the action taken on it by this Board be transmitted by our secretary to the local board of health of Brockport, and also a copy to the superintendent of public instruction or the state authority having in charge the expenditure of the building funds of the normal school at Brockport.

Very respectfully
CAMPBELL W. ADAMS
Consulting engineer

ALBANY, *December* 3, 1900

W. B. PRENTISS, *President Board of Health, Brockport, N. Y.:*

Dear Sir—In compliance with a resolution adopted at a meeting of this Board, held November 14, 1900, I enclose herewith copy of a report made by C. W. Adams upon his investigation of a complaint as to the unsanitary condition of the village of Brockport.

The report of Mr. Adams was adopted as the report of the Board, and it is urged that your board take such action as may be necessary to comply with the recommendations made by Mr. Adams.

A copy of Mr. Adams's report has also been sent to the state superintendent of public instruction.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *December* 3, 1900

HON. CHARLES R. SKINNER, *Superintendent of Public Instruction, Albany, N. Y.:*

Dear Sir—I enclose herewith copy of a report made by C. W. Adams, one of the consulting engineers of this Board, upon his investigation as to alleged unsanitary conditions in the village of Brockport.

I desire particularly to call your attention to that portion of Mr. Adams's report which refers to the lack of proper sewering facilities in the village, also to the sewerage needs of the normal school and the remedy for same as suggested by Mr. Adams.

Very respectfully

BAXTER T. SMELZER

Secretary

ALBANY, *December* 5, 1900

HON. B. T. SMELZER, *Secretary State Board of Health:*

Dear Sir—I am in receipt of your communication of the 17th inclosing the report of Campbell W. Adams relating to the sewerage of the village of Brockport. I have written to the authorities calling their attention to the situation making some suggestions in regard to the normal school sewerage, and forwarded your communication to the board of that school.

I thank you for calling my attention to it.

Yours respectfully

CHARLES R. SKINNER

State superintendent

TOWN OF ROTTERDAM

SCHENECTADY, *May* 12, 1900

DR. ALEXANDER ENNIS, *Health officer, Town of Rotterdam:*

Dear Sir—Agreeable to your communication of December 18, 1899, based on a letter addressed to you by Dr. Smelzer, secretary of the State Board of Health, dated December 16th, concerning an alleged unsanitary condition existing on and adjoining the premises of Henry Schuneman on upper State street just outside the limits of the city of Schenectady and in the town of Rotterdam, I beg to report that I have made an examination of the premises and the circumstances attending the case, with the following results: The premises in question comprise a house and large lot on the westerly side of State street, through which lot in the rear of the house lies the natural depression and drainage axis for that immediate territory. The extent of the drainage along this axis is not considerable because the drainage area is not very large and also because the upper surface soil in that region is rather porous and much of the drainage water passes off by percolation when the soil is in its ordinary and unfrozen state. During very wet weather and when the soil is frozen the drainage occurs over the surface, and it is at these times that the conditions complained of are the worst. The natural and in the past up to a few years ago the usual surface drainage has been along the clearly defined axis of drainage which passes through the land of Schuneman and across land now owned by J. Myers, of Schenectady, flowing in a northerly direction approximately parallel to State street, thence into a small stream entering the Brandywine pond. The evidence so far as I could secure it showed without contradiction that the drainage across Myers' land had always been in a well defined ditch, open and uncovered, until some four or five years ago, when Myers sold the lot adjoining Schuneman's premises to a Mr. Scheffling, who, desiring to grade and build upon the rear of the lot for some industrial purpose, endeavored to convert the ditch into a covered drain by filling it up with brush and filling over the brush with soil. This action was protested against by Mr. Schuneman, but Scheffling assured him that affective drainage would still be maintained. This was fulfilled for a time, but as the brush decayed the drain became stopped up and the only drainage remaining and now existing is over the surface of the ground, with the following exception: At sometime in the recent past a box drain has been built across Myers's land, extending from the easterly or front portion of the lot adjoining Schuneman's along the southerly side and near the Schuneman line toward the rear of the lot to a point easterly of the old ditch; thence running northwesterly and striking the line of the old drain or ditch quite a distance from the Schuneman line; this drain was laid to carry off drainage water crossing State street from the east side and in front of Myers's lot. After the filling up of the old ditch and its failure to provide drainage for the Schuneman lot, a short cross ditch leading from the Schuneman lot diagonally into the wooden box drain was cut through Myers's land with the consent and at the suggestion of Myers as a means of securing drainage of which Schuneman had been deprived. This would give the necessary drainage as well as the old ditch were it not for the fact that the box drain is located too high to drain the Schuneman lot, except the upper part of the water that accumulates on Schuneman's land. This box drain would have to be at least two feet lower than it now is to provide the necessary drainage for the Schuneman lot. After owning the lot for a short time it reverted from Scheffling to Myers, or, as Meyers claims, to his wife.

Mr. Schuneman states that he has repeatedly urged Mr. Myers to reopen the old ditch or to lower the wooden drain, but that he has refused to do either, and contends that the former old ditch was opened by him or by the former owner of the Schuneman lot (Lambert) as an accommodation to Lambert; this Lambert's friends, especially his daughter Mrs. Emma Wagner, of State street, Schenectady, denies and states that the ditch was an old and well defined ditch at least for over 30 years past, and that on one occasion, when Mr. Myers attempted to fill it up, her father (Mr. Lambert) took steps to secure an injunction against Myers, restraining him from filling it up, on which Mr. Myers desisted and allowed the ditch to remain in its usual state while he owned the lot.

As to the effect of the defective drainage, there is no doubt that it constitutes a nuisance and a direct menace to the health of the occupants of the Schuneman house and to a less extent to adjoining neighbors who live within the region of the influence of the swamp created on the Schuneman land. Water stands in the cellar of the Schuneman house whenever the water accumulates in the swamp back of the house, sometimes reaching a depth of two feet, and the cellar is damp and moldy even when the water does not show itself. This condition was unknown before the closing up of the Myers ditch, and the cellar was dry except on the occasion of very heavy rains, when the water would come in through a cellar drain and remain for a few hours and then go out again through the same drain. All the members of the Schuneman family have suffered in health from the damp cellar, and one or more cases of sickness have been attributed directly to this cause.

I beg therefore to submit as my opinion:

(1) That the existence of the wet, swampy land on the Schuneman lot, and more especially its direct consequence, the wet and damp condition of the Schuneman cellar, is unsanitary, a clear menace to health, and clearly constitutes a nuisance and should be declared such

(2) That the wet, swampy condition of the Schuneman lot is directly due to the closing of the ditch through and across the Myers lot, which, from the evidence, appears to have been closed without warrant.

(3) That it is the duty of the board of health of the town of Rotterdam, if convinced of the correctness of the above statement, to order the abatement of the unsanitary conditions and the nuisance by directing that the original drain across the Myers

lot be reopened, or one equivalent to it in drainage capacity be opened, under the authority conferred on the board by sections 21 and 25 of the general health law of 1893, chapter 661, and subsequent amendments, and, if not satisfied as to its legal powers, that it consult its counsel or attorney.

I am, dear sir, very truly yours

OLIN H. LANDRETH
Consulting engineer

ALBANY, *December* 6, 1900

MRS. JOSEPH MYERS, *Corner State and Hulett streets, Schenectady, N. Y.:*

Dear Madam—I enclose herewith for your information copy of a report made by one of the consulting engineers of this Board upon his investigation of a complaint made by Dr. Alexander Ennis concerning a nuisance caused to Henry Schuneman by the closing of a ditch running through and across a lot owned by you.

The report of Professor Landreth was adopted by this Board, and the board of health of the town of Rotterdam have been instructed to cause the abatement of the nuisance by directing the reopening of the ditch on your property.

Very respectfully

T. A. STUART
Assistant secretary

ANCRAM LEAD MINES

Hillside dairy

SCHENECTADY, N. Y., *September* 28, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I beg to submit the following report on my examination at the Hillside dairy, Ancram Lead Mines, Columbia county, made in accordance with your instructions and at the request of

M. G. Finkle, the proprietor of an ice-house at Ancram Lead Mines, whose ice pond, it is claimed, has been polluted by refuse discharged from the above-mentioned dairy.

On visiting the place I found the dairy in question had for some three or four years been in the habit of discharging its refuse into a small tank situated out of doors in the rear of the dairy, from which the farmers who brought milk took the whey or skim milk away with them, but that much remained unclaimed and that this portion frequently ran over and onto the ground and into an adjoining ditch and thence into a small stream, which stream was used for ice-cutting purposes by throwing a dam across it late in the fall. Both Mr. Finkle and Mr. Miller, one of the complainants, whose office was near the dairy, stated that they had repeatedly complained to the local board of health of the unsanitary conditions produced by the discharge of creamery waste on the ground and in the ditch and that such complaints had been of no avail until after the complaint was filed with the State Board of Health, after which time the proprietors of the creamery, the Hillside dairy, had excavated a cesspool a short distance from the creamery and had led a vitrified pipe to it from a point in the rear of the creamery house. The site of the cesspool is about 75 feet from the stream or ice pond by direct line though some 150 or 200 feet by the route followed by the ditch leading to it. The soil in the excavation was coarse gravel, sufficiently coarse and clean to permit the leaching away of any ordinary liquid refuse, but I am not at all sure sufficient or suitable for disposing milk refuse into. The bottom of the cesspool was on a level with the surface of water in the stream at that time but below the surface of water when the ice pond was dammed ready for cutting ice. The end of the pipe drain at the creamery was placed a foot or more above the surface of the ground, too high to drain the tank used for storing the milk and whey and too high to drain the ground about the tank and the ground about the creamery, which in several places was badly polluted with the milk, whey, and washings that had been thrown or allowed to run there. The accumulation of refuse from the creamery on the ground about it and in the ditch and stream was exceedingly offensive and clearly warranted the complaints made concerning it. The entire surroundings of the dairy, both inside and outside, were very deficient in cleanliness and exhibited a very decided want of care and attention to those matters of cleanliness and sanitation that are considered essential in the operation of industries of this kind. On my arrival at Ancram I was met at the train by Dr. Ellwood Oliver, health officer of the town, who expressed a strong desire that my examination should be made for and at the instance of the local board of health, rather than at the instance of the parties who had submitted the complaints to the State Board of Health. I informed him that my purpose was simply to gather information as to the facts bearing on the complaints and that the matter of its official relation, if it had any, could be determined by you, and that I should be glad to have him join in securing a thorough examination, which he did. Dr. Oliver was accompanied by F. O. Barton, a member of the local board of health, and who was reported to be the owner of the building in which the Hillside dairy company of New York conducts its creamery.

In general I have therefore to report:

(1) That the conditions found to exist at and about the creamery were of a very unsanitary and objectionable character.

(2) That the discharge of creamery refuse directly into the ditch and thus into the stream was a means of pollution of the stream and clearly unwarranted.

(3) That the construction of the cesspool as a means of disposal was a very questionable remedy, since if the soil should prove to be sufficiently porous to allow the refuse to percolate away it would do so at the expense of the purity of the adjoining stream, and if not sufficiently porous to allow this, the retention of the accumulated refuse in the pool would be very objectionable. Owing to the antiseptic character of the lactic acid formed by the decomposition of the milk refuse, there is little or no probability that purification by filtration could occur even if percolation should be possible.

I am, dear sir, very truly yours,

OLIN H. LANDRETH

Consulting engineer

ALBANY, *December* 3, 1900

O. FINCH, *President Board of Health, town of Ancram, Ancram, N. Y.:*

Dear Sir—At a meeting of this Board held November 14, 1900, a report was received from Prof. Olin H. Landreth upon his investigation of a complaint against the Hillside dairy at Ancram Lead Mines and the following resolution was adopted:

"*Resolved*, That a copy of the report be served upon the president of the local health board, and that he be requested to convene the local board of health to cause the abatement of the nuisance."

In compliance with the above resolution you are requested to convene the board of health of the town of Ancram that you may present Professor Landreth's report, and that the board may take the necessary steps to request the abatement of the nuisance caused by the Hillside dairy, as shown by Professor Landreth's report.

You are requested to inform this Board of such action as may be taken by the local board.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *October* 9, 1900

Dr. ELLWOOD OLIVER, *Health officer, town of Ancram, Ancram, N. Y.:*

Dear Sir—I send herewith enclosed a copy of the report made to this Board by Prof. Olin H. Landreth upon his examination of the Hillside dairy, located at Ancram Lead Mines, N. Y.

Particular attention is called to the following statement made by Professor Landreth:

"The entire surroundings of the dairy, both inside and out, were very deficient in cleanliness, and exhibited a very decided want of care and attention to those matters of cleanliness and sanitation that are considered essential in the operation of industries of this kind."

In view of the report made by Professor Landreth, it is recommended that your board take the necessary action to require the proprietors of the creamery to keep their building and grounds in a strictly sanitary condition at all times.

Very respectfully
BAXTER T. SMELZER
Secretary

ANCRAM, N. Y., *December* 24, 1900

Secretary State Board of Health:

Dear Sir—As requested, I convened the board of health of Ancram and inspected creamery complained of.

We find the conditions have been changed since your visit, a new and larger cesspool being made, and in our opinion everything is now being conducted in a sanitary manner.

They are also more careful about spilling milk, etc., and everything is kept in clean and tidy condition.

Yours, etc.
O. FINCH
President board of health

ALBANY, *December* 27, 1900

O. FINCH, *President Board of Health, Ancram, N. Y.:*

Dear Sir—I am in receipt of your communication of the 24th instant stating that upon inspection of the creamery at Ancram Lead Mines it is found that the conditions have changed since the visit of the representatives of this Board, the business being now conducted in a cleanly and sanitary manner.

In reply you are advised that it is the duty of your board to see that a repetition of the unsanitary conditions is not permitted in the future, and it is recommended that the health officer of your board make occasional visits to the creamery that he may know from personal inspection the premises and surroundings are kept in a cleanly condition.

Very respectfully
BAXTER T. SMELZER
Secretary

OLEAN

Twomile creek

ALBANY, *September* 6, 1900

Hon. C. W. ADAMS, *Consulting engineer, State Board of Health, Amsterdam, N. Y.:*

Dear Sir—You are directed to proceed to Olean, N. Y., for the purpose of investigating as to alleged nuisances caused by the waste from tanneries as explained to you over the 'phone this day.

When you reach Olean you are advised to confer with the health officer, Dr. J. C. Clarke, who will no doubt fully explain the situation to you.

In making your report to this Board, kindly have it in duplicate that one copy may be sent to the Olean parties.

Very respectfully
BAXTER T. SMELZER
Secretary

UTICA, N. Y., *September* 13, 1900

Hon. B. T. SMELZER, *Secretary State Board of Health:*

Sir—Pursuant to your direction by letter of September 6th, I went to Olean on the 10th to inspect the situation in that town in regard to the sanitary condition of a certain stream, alleged to be polluted by some tanneries located on its banks. I desire to submit the following report:

A brief description of the topography will make the case more easily understood. The town of Olean includes the city of Olean. The stream in question, known as the "Twomile creek," runs its whole course wholly outside the city limits but close by. The city and the portion of the town lie upon a broad plain slightly rolling and quite level. This plain is bordered on the northwest and south by ranges of hills. Skirting the southerly hills runs the Allegany river, into which the sewers of the city discharge.

Springing from the hills on the north this Twomile creek flows as a mere brook across the plain in a southwesterly course and discharges into the Allegany river. Several manufacturing plants are located along the creek, including two tanneries; one owned by American hide and leather company is located about one mile from the mouth of the creek, and the other, owned by Adam Kinley & Son, is further up the stream, about one-fourth of a mile. At this dry season of the year the water that flows in the creek naturally is only a trifle. The tanneries discharge into it the bulk of its dry weather flow. I was unable to learn the quantity thus discharged, but it may be put at 200,000 gallons in the 24 hours. The water thus discharged from the tanneries carries with it an amount of lime, some salt, some hair, some fleshings and bits of hide; a very little of the tanning liquor, enough to give the discharge a reddish color. Previous to 1896 this polluted water was discharged directly into the creek and the organic matters and the mineral matters in suppression were carried on by it down toward the rver But the fall in the creek is so very slight that these matters were largely deposited on the bottom and sides of the creek. In addition to these wastes from the tanneries, there were at that time wastes from a chemical plant and an oil refinery which were discharged into the creek. I was informed that these latter wastes are no longer sent into it but are carried off by a city sewer. Certainly the stream above the Kinley tannery and below those plants showed no sign on its bottom or in the water then running of any pollution.

At the instance of the health officer of the town of Olean, Dr. W. Carl Dallenbaugh, some three or four years ago the owners of the tanneries each built a series of settling tanks into which this waste-polluted water is discharged. At the Kinley tannery the effluent from the last of its series of tanks, when we opened the gate provided, ran into the creek as a muddy looking water only, and I failed to detect any odor from it, nor did the bed of the creek show any signs of organic deposits. At the American company's tannery the effluent from the last of the series of tanks, when we opened the gate, appeared to be considerably polluted and a slight odor was noticed.

The tannery owners have made an honest effort to remove the main portion of the polluting substances before turning the water into the creek. The design of these settling tanks could be improved. Instead of discharging from the last tank as they now do, through an opening at the bottom of the tank controlled by a gate, which when opened permits the water to rush out with force, carrying more or less pollution with it, the discharge should be from near the top of the tank, and it should be over a weir as long as practicable. The water would then discharge gently and continuously and the settlings would be kept in the tanks to be otherwise removed. Their operation would then be like that of a septic tank, and probably a similar bacterial oxidation of the organic matters would take place, resulting in a cleaner effluent.

I had talks with the owners of property along the Twomile creek below the tanneries. These are the people who make complaint They each own a few acres of land through which the creek passes. They live there, and their complaint is that under certain conditions of the atmosphere, and the wind blowing from the right direction, they have to endure offensive odors which they attribute to this creek. It is quite possible, as with the methods I have described for discharging the tanks at the tanneries, some of the organic matter is carried down the stream, and as the flow is intermittent, this matter may lodge and putrefy. It is highly probable too that the practice followed of removing the sludge which settles in the tanks every few days and dumping on the surface of the ground and left only partially covered from the light and air creates another potent odor-producing condition. This should be stopped. The sludge should be put into tanks or receptacles and closed from the light and air until ready for removal by the farmers who use it for fertilizer.

Two years ago the tannery owners began at the river and cleaned out the creek channel and straightened it in places all the way up to the tanneries They purchased the right to do this work from some of these complaining property owners. They propose to repeat this process now, and are willing to put in a box or wooden channel so that the water would flow more freely and carry off to the river any polluting matters. One or more of the property owners refuse to let the work be done on their land. They claim it is not effective, that it injures their property, and probably want pay for granting permission.

The town board of health of Olean is ready to order this work done, including the wooden channel, but as a portion of the creek lies in the adjoining town of Allegany the Olean board is helpless. The Allegany board of health declines or neglects to act in the matter, so that the property owners who hold out against the work being done effectually block it.

The whole matter is not a very serious one, but as it seems to be a recurring complaint, the authority to cope with it so divided all the parties being nearby constituents of Senator Higgins, he requests that something be done to effectually settle it.

This is a fair statement of the situation; now what are the remedies? I suggest:

First—The State Board of Health should, by resolution, declare that the stream known as the "Twomile creek" in the town of Olean, Cattaraugus county, N. Y., in its present condition is a nuisance and injurious to the public health of the citizens of Olean; and

Second—By resolution call upon the town boards of health of the towns of Olean and Allegany, Cattaraugus county, N. Y., to take the necessary steps to cause the Twomile creek, where it flows through the towns of Olean and Allegany, to be cleaned out, and a new artificial channel of wood or other material be constructed so as to effectually drain the low lands contiguous, and reduce to a minimum the opportunity for lodgment of any organic matters, which the stream may carry, and

Third—Advise the board of health of the town of Olean to cause at least a partial reconstruction of the settling tanks at the tanneries described in this report so that the polluting materials shall be less liable to be carried off by the effluent water and deposited in Twomile creek; and

Fourth—Advise the town board of health of Olean to cause the owners of the tanneries to provide themselves with some form of receptacle into which the settlings or sludge from the tanks shall be deposited and kept covered from light and air until their final disposition.

Respectfully submitted.

CAMPBELL W. ADAMS
Consulting engineer

ALBANY, *October* 9, 1900

M. L. LEE, *President Board of Health, Town of Olean, Olean, N. Y.:*

Dear Sir—In compliance with a resolution adopted by this Board at a meeting held September 30, 1900, I enclose herewith copy of a report made by C. W. Adams upon his investigation of a complaint concerning the unsanitary condition of Twomile creek.

It is requested that you submit the report to the board of health of the town of Olean at the earliest practicable date, calling their attention to the second, third and fourth recommendations made by Mr. Adams.

You are requested to inform this Board as to such action as the local board may take on the report.

Very respectfully
BAXTER T. SMELZER,
Secretary

ALBANY, *October* 9, 1900

GEORGE A. HALL, *President Board of Health, Town of Allegany, Allegany, N. Y.:*

Dear Sir—In compliance with a resolution adopted by this Board at a meeting held on September 30, 1900, I enclose herewith copy of a report made by C. W. Adams upon his investigation of a complaint concerning the unsanitary condition of a stream known as Twomile creek.

I would also call your attention to the several recommendations of Mr. Adams.

You are requested to present the report to your board at the earliest practicable date, informing this Board of the action taken by them on same.

Very respectfully
BAXTER T. SMELZER
Secretary

INDIAN LAKE

Water supply

ALBANY, N. Y., *June* 21, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany:*

Dear Sir—In accordance with instructions from you I proceeded on Friday the 8th instant to the town of Indian Lake, Hamilton county, to make an investigation of water supplies, as requested by the health officer, Dr. Frederick Stevenson, acting upon the accompanying resolution of the town board. On arriving at the village of Indian Lake I was met by Dr. Stevenson, who informed me that the trouble was at Blue Mountain lake in the same town, 10 miles further on, a favorite summer resort, whose popularity is threatened by a rumor that the village water supply is of a suspicious character, and that a considerable number of cases of typhoid fever has developed there.

At Dr. Stevenson's request I took a sample of the water of Indian lake for analysis before going on to Blue Mountain lake. The results of the analysis are as follows:

(Figures are parts per 100,000)

Color	Yellowish tint.
Turbidity	None.
Sediment	Trifling.
Odor at 100° F	Very slight.
Chlorine	0.15

Free ammonia	0.0427
Albuminoid ammonia	0.0135
Nitrites	Trace.
Total solids	3.80
Loss on ignition	1.60
Behavior during ignition	Blackened.
Mineral matter	2.20

This sample was taken several feet from the shore of the lake, at the edge of the boat landing in front of the Locke house, and may not represent the average quality of the lake water. From the results of the analysis it would be condemned as being unfit for drinking purposes, but if not used for drinking it could have no harmful influence upon the healthfulness of the neighborhood.

On Saturday, the 9th instant, I proceeded to Blue Mountain lake and spent several days there. I found that the village had constituted itself a water district and was about to issue bonds to be guaranteed by the town for the purpose of putting in a new water supply, and had appointed H. M. Durant, J. G. Holland and T. M. Merwin, proprietors of the three largest hotels, as commissioners to superintend its installation, all under the provisions of law, the purpose of the above-mentioned resolution being to have an agent of the State Board of Health to inspect the sources of supply before beginning work. They had already employed an engineer, who had worked over the district and was preparing plans for three reservoirs at different points on the side of Blue mountain for storage of the water. During most parts of the year any one of these reservoirs would furnish a sufficient supply for the village, but during the summer the brooks feeding them become very low, and the hotels are full of guests, using large amounts of water, and it is throught that a large amount of storage will be necessary in order to insure a constant supply. According to their location these reservoirs may be designated as southern, middle and northern, and will be so referred to in the balance of this report. Accompanied by Tyler M. Mervin, one of the water commissioners and a member of the local board of health, I made an inspection of the sources of supply for these proposed reservoirs with the following results.

SOUTHERN RESERVOIR

To be built far up on side of Blue mountain back of the Blue Mountain Lake house and above all possible sources of pollution. Source of supply is a brook which has its origin in a spring some distance above where the reservoir is to be constructed. The surroundings of this spring and the brook are excellent in all respects. A sample of the water was taken from the brook at about the spot where the reservoir is to be constructed and gave the following results upon analysis:

(Figures are parts per 100,000)

Color	Light greenish-yellow tint.
Turbidity	None.
Sediment	Trifling.
*Odor at 100° F.	None.
Chlorine	0.15
Free ammonia	0.0055
Albuminoid ammonia	0.0050
Nitrites	None.
Total solids	4.80
Loss on ignition	1.20
Behavior during ignition	Darkened.
Mineral matter	3.60

These results show the water to be of excellent quality.

MIDDLE RESERVOIR

This reservoir is to be constructed on the side of Blue mountain, in a similar location to that of the southern reservoir, above all possible sources of pollution. Its main source of supply will be a brook, sometimes called Fuller's brook, which has its origin in a spring far up towards the top of the mountain. The surroundings of the location proposed for this reservoir and of the brook which will feed it are excellent. A sample of the brook water taken just above where the reservoir is to be constructed gave the following results upon analysis:

(Figures are parts per 100,000)

Color	Light greenish-yellow tint.
Turbidity	None.
Sediment	None.
Odor at 100° F.	None.
Chlorine	0.10
Free ammonia	0.0055
Albuminoid ammonia	0.0050
Nitrites	None.
Total solids	2.60
Loss on ignition	0.60
Behavior during ignition	Darkened.
Mineral matter	2.00

This water is also of excellent quality.

NORTHERN RESERVOIR

It was proposed to construct this reservoir at the extreme northern end of the village but a few feet distant from the road. It was to be fed by a large spring which is the present source of supply for the Blue Mountain house by two brooks which come down the side of Blue mountain and unite just above the point where the dam is to be located, and by several springs which low from the ground at about the same point. The surroundings of these springs are very unsatisfactory, as there are three dwellings, a blacksmith shop, barn and outhouses just north of them, and the grade is such that drainage from these buildings must pollute the water of the springs unless strenuous measures were o be taken to prevent such pollution by both surface and subsoil drainage. It was proposed to construct an open drain below the houses to prevent surface drainage into the reservoir, but at the best the surroundings would be very suspicious. At a meeting of the water commissioners held Monday, the 11th instant, which I attended, they determined to abandon the idea of constructing a reservoir at this place on my recommendation, and to depend upon the spring which is the present source of supply for the Blue Mountain house to supply this part of the village, but to so connect the pipes that, in case this spring gives out during a dry season, the pipes will be kept full from the other sources of supply. I took a sample of the water of this spring, which is well up on the side of Blue mountain, above all buildings of any kind, and has a small reservoir of masonry about it. The sample was drawn from a faucet in the Blue Mountain house and gave the following results upon analysis:

(Figures are parts per 100,000)

Color	Light greenish-yellow tint.
Turbidity	None.
Sediment	None.
Odor at 100° F	None.
Chlorine	0.10
Free ammonia	0.0005
Albuminoid ammonia	0.0073
Nitrites	None.
Total solids	3.80
Loss on ignition	1.40
Behavior during ignition	Darkened.
Mineral matter	2.40

Water of excellent quality.

In the event of a shortage of water from the above three sources of supply during a dry season, which, however, is not expected, the commissioners propose to pump water from Crystal lake, a small lake some distance from the village, over a hill back of the Hotel Utowanna in an uninhabited section. I took a sample of the water of this lake and on analysis the results were as follows:

(Figures are parts per 100,000)

Color	Light greenish tint.
Turbidity	None.
Sediment	None.
Odor at 100° F	None.

Chlorine	0.10
Free ammonia	0.0050
Albuminoid ammonia	0.0060
Nitrites	None.
Total solids	1.20
Loss on ignition	0.40
Behavior during ignition	Darkened.
Mineral matter	0.80

Water of excellent quality.

At the request of members of the board of health I took a sample from Blue Mountain lake, far from the shore, and on analyses it gave the following results:

(Figures are parts per 100,000)

Color	Light greenish tint.
Turbidity	None.
Sediment	None.
Odor at 100° F	Slight (fishy).
Chlorine	0.10
Free ammonia	0.0055
Albuminoid ammonia	0.0080
Nitrites	None.
Total solids	2.80
Loss on ignition	0.60
Behavior during ignition	Darkened.
Mineral matter	2.20

In the absence of explicit information, this water would be passed upon as being of good quality, but it is never so safe to use the water of a lake situated as this one is, into which there is certain to be more or less drainage, as it is to get a water from more favorably surrounded sources. It is certain, however, that no typhoid fever need be feared from the water of this lake so long as it is not used for drinking purposes.

All of which is respectfully submitted.

Yours very truly

THEODORE J. BRADLEY, PH. G.

BOROUGH OF BROOKLYN

Water supply

BOROUGH OF BROOKLYN, *February* 13, 1900

Secretary, State Board of Health:

Dear Sir—Under instructions herewith is transmitted a resolution passed at the annual meeting of this society concerning the source of water supply to the borough of Brooklyn, New York city.

Truly yours

D. MYERLE, M. D.

Secretary

Whereas, It has been stated in the public press that, owing to the present scarcity of water in the borough of Brooklyn, there is a possibility that the water from Baisley's and the Springfield ponds may be again supplied to consumers; and

Whereas, Careful examinations, extending over a period of 12 months, showed that the water of said ponds was totally unfit for human consumption by reason of the abundance of bacteria, some of the counts being as high as 35,000 per cubic centimeter, among which bacteria were bacilli coli communis, an organism having as its habitat the intestines of animals and men, and therefore an index of the source of pollution and of the dangers connected therewith; and

Whereas, Said water contained an amount of nitrates, nitrites and albuminoid ammonia indicative of contamination; and

Whereas, The Brooklyn health department in its "Report on the water supply," on page 144, said: "Baisley's and Springfield ponds are evidently polluted, but are not now in use. Their condition is such that at no time should they be readmitted to the supply;" and

Whereas, As the result of an inspection of the pond and environs at Springfield, made in September, 1896, and based on a knowledge of the chemical and biological conditions, a report was made to the State Board of Health which resulted in that body condemning this source of supply as unsafe; therefore be it

Resolved, That the Medical society of the county of Kings hereby protests, in the interests of the public health, against the use of the water from Baisley's and Springfield ponds or either of them, and calls upon the department of health of the city of New York, and particularly upon its representative in the borough of Brooklyn, to prevent by all means in their power the readmission of the water from these ponds into the water supply of the city.

Resolved, That the committee on public health be requested to present in person a copy of these resolutions to the acting sanitary superintendent and to the authorities having in charge the water supply of the city, and the secretary of the society be instructed to send a copy to the State Board of Health.

THE MEDICAL SOCIETY OF THE COUNTY OF KINGS
D. MYERLE, *Secretary*

ALBANY, *May* 7, 1900

W. T. JENKINS, *Health commissioner, Sixth avenue and Fifty-fifth street, New York:*

Dear Sir—In compliance with a resolution adopted at the last meeting of the Board, I enclose herewith for investigation and report by you at the next meeting a complaint made by the Medical society of Kings county concerning the alleged use of water from Baisley's and Springfield ponds as a part of the water supply of the borough of Brooklyn.

Very respectfully
BAXTER T. SMELZER
Secretary

DEPARTMENT OF HEALTH

NEW YORK, *June* 25, 1900

To the Sanitary Superintendent:

Sir—Beg leave to report in reply to the communication of May 16, 1900, forwarded by direction of William T. Jenkins, M. D., commissioner, in which was asked for facts in relation to the Baisley's and Springfield ponds, would state that on January 23, 1900, the following report was forwarded to the borough of Manhattan:

JANUARY 23, 1900

To the Sanitary Superintendent:

Sir—Beg leave to report that in company with Henry V. Walker, chief inspector of the third division, and Medical inspector Thomas A. York, I visited Baisley's and Springfield ponds on January 18, 1900, and took two samples of water from each pond. One of each was sent to laboratory in borough of Manhattan.

The sources of supply are:

(1) Springfield (upper and lower) ponds are situated in village of Springfield, township of Jamaica, on Springfield avenue. The upper is fed by a stream which rises about two miles to the north. The lower is supplied by the overflow from the upper. Between the two ponds a small stream enters the main one. On both sides of the stream, which is the main feeder, are to be found a number of outhouses attached to dwellings. Also a horse and cattle infirmary. The sewage of all empty into this feeder. The drainage area is 8.12 square miles, including the villages of Floral Park and Springfield.

(2) Baisley's pond is situated on Rockaway road near the Jameco pumping station and is fed mainly by two streams known as Jamaica East stream and Jamaica West stream, which originate at the town of Jamaica, and by a stream running parallel to Locust avenue. The drainage area is 10.88 square miles and includes the town of Jamaica.

The following is the chemical analysis as made by Henry V. Walker:

(1) Springfield ponds. Sample was taken from the pond just at e entrance to the pump well.

Appearance	Turbid
Color	Normal
Odor (heated to 100° Fahr.)	Vegetable
Chlorine in chlorides	1.15
Equivalent to sodium chloride	1.895
Phosphates	None
Nitrogen in nitrates	Faint trace
Nitrogen in nitrates and nitrites	0.2595
Free ammonia	0.0148
Albuminoid ammonia	0.0096
Hardness equivalent (before boiling)	3.00
Carbonate of lime (after boiling)	3.00
Organic and volatile (loss on ignition)	3.70
Mineral matter (non-volatile)	6.60
Total solids (by evaporation)	10.30

This analysis indicates unmistakable sewage contamination.

(2) Baisley's pond.

Appearance	Turbid
Color	Normal
Odor (heated to 100° Fahr.)	Earthy
Chlorine in chlorides	1.10
Equivalent to sodium chloride	1.813
Chlorine in chlorides	1.10
Nitrogen in nitrates	Faint trace
Nitrogen in nitrates or nitrites	0.2077
Free ammonia	0.0128
Albuminoid ammonia	0.0116
Hardness equivalent (before boiling)	3.70
Carbonate of lime (after boiling)	3.70
Organic and volatile (loss on ignition)	3.80
Mineral matter (non-volatile)	6.80
Total solids (by evaporation)	10.60

This analysis indicates unmistakable sewage contamination.

At both ponds the water was very turbid and had a musty and disagreeable odor. Along the banks of both of them where the bottom could be seen there was evidence of decomposition.

At the time of inspection, the pumps at both stations were at work, but were being used for the driven wells. The ponds were not being drawn from and are not being used by the department of water supply.

Aside from the condition of contamination, as shown by above chemical analyses, no water should be used from either of these ponds without being submitted to a process of filtration.

The water from these ponds, in their present state, is unfit for human consumption.

Respectfully submitted.

R. A. BLACK, M. D.
Assistant Sanitary Superintendent

Within the last 24 hours I have received word from Deputy commissioner Moffett, of the department of water supply, that the water from Baisley's and Springfield ponds have not been used since he assumed office on January 1, 1898; that the use of the water in Baisley's pond was discontinued during the term of Hon. A. T. White, commissioner of city works of the city of Brooklyn, and that the use of the water in Springfield pond was discontinued during the term of the Hon. T. B. Willis, successor.

Respectfully submitted.

R. A. BLACK, M. D.
Assistant sanitary inspector

EAST HAMPTON

Water supply

ALBANY, *July* 9, 1900

To the State Board of Health, Albany, N. Y.:

Gentlemen—At the request of Dr. J. Finley Bell and other residents of East Hampton, N. Y., I visited that village on the 30th of June, for the purpose of inspecting the possible effect upon their water supply of the system of leeching cesspools which many residents have installed on their premises. East Hampton is a village of from 1500 to 1800 inhabitants, many of whom occupy their homes only in summer, their residences being in New York city. The location is upon the shore of the Atlantic, the ground very flat, the soil composed of a layer of loam, underneath that a layer of clay which is practically impervious to water, beneath which is a substratum of coarse sand and gravel. This formation is practically the same over the entire site of the village. The water supply is secured from a well or wells driven through the clay and into this substratum of sand and gravel. The water-works belong to a water company, but many of the residents still use wells, and in some instances these cesspools complained of are located near wells which have heretofore been used for household purposes. It is a serious question whether or not the final result of this species of cesspools will be to saturate the soil and thus pollute the existing wells on private premises, and in time possibly the wells belonging to the water company. I inspected several of these cesspools, also others of the Waring system which many residents have put in, in company with Mr. Osborne of the local board of health. While it is my opinion that no serious trouble is to be anticipated for some time to come with the town water-works supply, which is now in the neighborhood of half a mile from any dwelling, yet some of the private wells are undoubtedly in danger, and it seems wise in the opinion of the local board of health, in which my inspection compels me to coincide, to take such precautions as are necessary now before serious trouble has been rendered probable.

If the local board of health has the power to require the installation of the Waring system, or some other equally efficient, and to prohibit the use of leaching cesspools, they would doubtless avail themselves of that authority, if so advised by this Board. I therefore would offer the following recommendation:

That the question of the power of local health boards to regulate the methods of the disposal of sewage in unincorporated villages be referred to the drainage committee with the request that the attorney-general give an opinion thereon for transmission to the authorities at East Hampton.

Respectfully submitted.

DANIEL LEWIS

ALBANY, *July* 24, 1900

EDWARD OSBORNE, M. D., *Health officer, East Hampton, N. Y.:*

Dear Sir—I transmit herewith a copy of the report made by Dr. Daniel Lewis upon his investigation as to the possible pollution of the public and private supplies of potable water in the village of East Hampton by reason of the use of leaching cesspools.

While it is not within the province of a local board of health to specify the Waring or any other particular system for the abatement of nuisances caused by leaching cesspools, a local board may adopt and enforce rules requiring that all cesspools be constructed and maintained in such a manner as not to cause the pollution of the soil near or about habitations, or of any well, spring or other source of water used for drinking or culinary purposes.

In view of the report made by Dr. Lewis, it is recommended that the board of health of the town of East Hampton adopt as one of its rules section 2 of the sanitary regulations, a copy of the section referred to being enclosed.

In adopting the rule it will be necessary to have a fixed penalty for its violation as the courts do not always recognize a sliding scale.

Very respectfully
BAXTER T. SMELZER
Secretary

FORT PLAIN

Pollution of water supply

FORT PLAIN, N. Y., *August* 30, 1900

T. A. STEWART, *Assistant secretary State Board of Health:*

Dear Sir—Enclosed find the resolution of our local board of health passed last evening at a special meeting.

If your engineer will let me know on what train he will arrive here I will meet him at the depot and take him over to the waterworks.

Yours, etc.
W. ZOLLER
Health officer

FORT PLAIN, N. Y., *August* 29, 1900

At a special meeting of the board of health, August 28, 1900, the following resolution was unanimously adopted:

Resolved, That the health officer communicate with the State Board of Health and ask them to send a sanitary engineer to go over the route and make a perfect analysis of the water and send it to Health officer Zoller of the town of Minden.

F. E. HUFNAIL
Clerk

ALBANY, *September 6*, 1900

Dr. WILLIAM ZOLLER, *Health officer, Fort Plain, N. Y.:*

Dear Sir—I am in receipt of your communication of August 30th requesting the services of one of the consulting engineers of this Board to examine the watershed and reservoir of the public water supply of Fort Plain.

In reply you are informed that C. W. Adams has been detailed for the duty, and has been instructed to communicate with you as to when he will reach Fort Plain.

Very respectfully
BAXTER T. SMELZER
Secretary

UTICA, *September* 21, 1900

Hon. B. T. SMELZER, *Secretary State Board of Health:*

Sir—September 7th you sent me instructions to visit Fort Plain and inspect the watershed furnishing the public water supply of the village, the quality of which was complained of by some of the citizens of Fort Plain.

On the 8th of September, accompanied by Dr. William Zoller, health officer of the village, an inspection was made of a portion of the watershed, the reservoir, the intake supplying the reservoir, and the stream above the intake to its sources.

Before describing the conditions of these several features of the water supply, it may be well to refer to the complaints which brought up the question as to the quality of the supply.

During the early part of last August one of the physicians of Fort Plain had a few cases of typhoid fever. He ascribed the cause to the public water supply. He sent samples of the water to Dr. Theodore Deecke of Utica, who gave them a bacteriological examination. His report on August 11th condemned the water as unfit for potable purposes. The number of bacteria per cubic centimeter was excessive; the presence of the colon bacilli in large numbers, and a strong probability of the presence of the typhoid bacillus, led him to the condemnation expressed.

The health officer, Dr. Zoller, then secured samples of water from a village tap from the reservoir and from the stream supplying the reservoir at the point of the intake, and requested Secretary Smelzer to cause to be made an official chemical analysis of the water. On August 18th Dr. Tucker of the State Board of Health reported such chemical analyses, and these disclosed no unusual amounts of organic matter in two of the samples. The third sample was slightly in excess in amount of free ammonia which good water should show. These apparently conflicting reports led to further action by the secretary and his determination to have the watershed examined.

Fort Plain is a village of about 2800 inhabitants, compactly built, located on the south bank of the Mohawk river. The flat lands of the valley at this point are rather limited in area and the subsoil is mostly a very porous gravel. The hill slopes on the south are sharp. The village is supplied with a sewer system devised by a competent engineer and is understood to be satisfactory. Five or six years ago the public water supply, then in use, was limited in quantity, and the village undertook the project of a new supply. The result was the one now in use. The source of supply is a branch of the Garoga creek, which discharges into the Mohawk river about two miles northwest of Fort Plain. The branch in question was tapped at a point some seven miles northerly of the village. A wooden dam was built across the stream. An intake well, properly screened, is provided. An eight-inch iron pipe leads from this well down the valley of the branch and the main stream, Garoga creek, to a point half a mile north of the village, where the distributing reservoir is located on a hill. The distribution system is supplied from this reservoir, or it can be fed directly from the main pipe, the reservoir water being cut out. It is claimed that the pressure on the village mains is insufficient and the main supply pipe from the intake itself is too small to maintain a full reservoir. On the day of our inspection it was half full, but the water was said to be flowing direct from the intake to the village and the reservoir water was cut out.

The reservoir, when full, may flow about four acres. Its site is a swale with gentle slopes and a dam of earth with paved inside slopes across the swale, and extending from either end of it is a continuation of the embankment, unpaved, up the swale. From the foot of the side embankments the bottom of the reservoir slopes gently towards its center, so that the water is shallow over the greater portion of the reservoir. Being only half full of water, these slopes, on the day of my visit, had a rank growth of grass and weeds over most of their surface. This vegetation would, of course, be submerged and drowned by filling the reservoir. If this occurs each autumn, it is reasonable to suppose that the reservoir bottom has considerable decayed vegetation on it. The shallow water at the shores disclosed large numbers of pollywogs. The mud bore the footprints of cows and horses and the latter, three or four in number, were grazing in the reservoir enclosure. The fence bordering the adjoining meadow, now pasturing cattle, was broken and a panel of it removed, so that the cattle could have free access to the reservoir.

This condition of things indicates a total disregard of even the ordinary precautions which should be taken to keep pure a public water supply. The local board of health should promptly order the reservoir disconnected from the system and kept out of use until it is put in proper shape for the storage of water. The reservoir bottom should be dug out and removed. The slopes of the impounding banks, both where they are artificial or made banks, and in excavation or natural banks, should be made steeper, giving a slope of at least three to one, and carried down so as to give deeper water all over the reservoir. The banks should be paved and the vegetation would have less opportunity to grow.

The intake pipe taps the stream in a pasture. The dam impounds the water, making a pond about six feet deep at the dam, perhaps 60 feet wide and 300 feet long. The shores of the pond bear every evidence of its being the drinking and lounging place for cattle.

From the intake, we examined the watershed to the sources of the stream. For a mile up the stream it flows through pasture lands or meadows which are used as pastures in the dry season. The valley then becomes narrow, and precipitous wooded slopes bound the stream. The stream here divides. The main or north branch from the north is through a rocky gorge and rises from springs half a mile further up. Its flow is very uniform and apparently is a pure stream of water without contamination.

The smaller branch flows from the west, and at a point about half a mile from the junction it is dammed, and the pond thus formed is said to cover 40 acres when full. At the time of our visit it looked like a large swamp. Stagnant pools of water were visible, though the main stream had some motion.

By direction of Secretary Smelzer I secured three samples of the water and expressed them to the Bender hygienic laboratory at Albany, requesting a bacteriological examination. One sample was from a running fountain in Fort Plain. One sample was from a point in the pond directly at the intake pipe, and the third sample was from the stream a mile above the intake but below the junction of the north and south branches of the stream, so that it probably contained some water from the swamp or pond on the south branch. The report of Professor Blumer of the Bender laboratory follows:

ALBANY, N. Y., *September* 14, 1900

CAMPBELL W. ADAMS, *Utica, N. Y.*:

Dear Sir—I have concluded the bacteriological examination of the Fort Plain drinking water and herewith submit my report on the same.

Specimen No. 1, from the pond of water just at the intake. Number of bacteria to the cubic centimeter on agar-agar plates 20,000; on gelatin plates 10,000; average 15,000 to the cubic centimeter. With Theobald Smith's test all of 10 tubes inoculated showed gas formation, and in three of these the amount of gas is between 40 and 50 per cent, and the medium has an acid reaction.

Specimen No. 2, taken from the same stream, a mile further up its course. Number of bacteria to the cubic centimeter on agar plates 25,000; gelatin 58,000; average 41,500. With Theobald Smith's test each one of 10 tubes inoculated with 1 c. c. of water showed gas formation. Two of these tubes showed an acid reaction and between 40 and 50 per cent of gas.

Specimen No. 3, from a drinking fountain in Fort Plain. Number of colonies per cubic centimeter on agar plates 30,000; on gelatin plates 60,000; average 45,000. With Theobald Smith's test all of 10 tubes inoculated showed gas formation, and three of these showed an acid reaction and between 40 and 50 per cent of gas.

The bacteria present in all these samples of water are the same, large numbers of the bacillus coli communis and the bacillus proteus vulgaris being present, besides the ordinary water bacteria.

Remarks—Judging from the excessively high bacterial count and the presence of the colon and proteus bacilli this water is entirely unfit for drinking purposes. The bacterial count alone would condemn it, but the presence of the colon and proteus must be considered absolute evidences of serious organic contamination. The typhoid bacillus was not isolated from the water, but this could hardly be expected considering the presence of such large numbers of colon bacilli.

Respectfully submitted.

GEORGE BLUMER.

It will be seen that Professor Blumer condemns the water for potable purposes, because of the large number of bacilli and the noted presence of the colon and the proteus bacilli. The presence of gas denotes putrefaction, and these bacilli mentioned indicate contamination by the droppings of cattle. But Prof. George C. Hodges, of Utica, bacteriologist for the Utica water works company, pointed out to me that the examination did not reveal any pathogenic bacilli, and the disclosed presence even in quantities of the colon bacillus did not predicate unhealthy water as they are found in the intestines of healthy animals.

The water, however, would be better without them, for they show contamination which, to public sentiment, is obnoxious.

I have detailed the observed conditions surrounding or affecting the water supply and they certainly indicate an unsatisfactory water now being furnished the people of Fort Plain. I have indicated the means that might be adopted to better it. On the surface it appears that the water from the north creek is unpolluted, and it could be used as the only source of supply. To determine whether its quality is all right and the minimum flow produces a quantity sufficient, is the duty of the Fort Plain water board.

In conclusion permit the suggestion, that the State Board of Health is justified in taking positive action, and I would suggest the following:

Whereas, The report of Campbell W. Adams, one of our consulting engineers, in the matter of the public water supply of the village of Fort Plain, N. Y., reveals a condition affecting the source of supply that is sure to pollute it above the intake, and, an inexcusable negligence in the care of the water after collection, therefore,

Resolved, That the State Board of Health, with a due regard for the public health of the people of Fort Plain, does hereby condemn the further use of its present public water supply in its present condition, and advises that immediate steps be taken by the local authorities to remedy the matter.

Resolved, That a copy of this preamble and resolution, with a copy of Mr. Adams' report, be sent to the local board of health of Fort Plain.

Respectfully submitted.

CAMPBELL W. ADAMS
Consulting engineer State Board of Health

ALBANY, *December* 3, 1900

WILLIAM ZOLLER, *Health officer, Fort Plain, N. Y.:*

Dear Sir—At a meeting of this Board, held November 14, 1900, the report of C. W. Adams, upon his examination of the watershed of the water supply of the village of Fort Plain was submitted, and the following resolution adopted:

Resolved, That the suggestions and resolutions contained in the report become the resolutions of this Board, and that the suggestions therein contained be complied with.

In compliance with the resolutions adopted, a copy of the report of Mr. Adams is herewith enclosed, with the request that you present the same to the board of health of Fort Plain, that they may take the necessary steps to ensure a pure water supply.

Very respectfully
BAXTER T. SMELZER
Secretary

PORT JERVIS

New reservoir

SCHENECTADY, N. Y., *June* 30, 1900

P. E. FARNUM, *President Port Jervis water company, Port Jervis, N. Y.:*

Dear Sir—I beg to report that agreeable to your request and to the instructions from the secretary of the State Board of Health, I have examined the site of the proposed new reservoir selected by your company for the storage of an additional water supply, with reference to the means to be taken to render the reservoir suitable as to potability and purity of the water stored.

My examination was made on April 21st of the present year shortly after the spring run-off of melted snow and spring rains had occurred, in fact while there still remained some frost in the wetter portions. The location in question is some four miles from the village of Port Jervis, in a northwesterly direction, and at an altitude of some 600 feet above the general level of the land in the village. The drainage area tributary to the reservoir was stated to me by your engineer, Irving Righter, to be about five square miles. The acreage proposed to be covered by the reservoir, if built at the higher of the two flow-lines considered, is about 75 acres. With this flow-line the greatest depth of water when full will be 30 feet. One-half of the reservoir area will have between 20 and 25 feet depth and one-quarter will have between 15 and 20 feet depth. The average slope of the ground at the flow-line will be from 1:6 to 1:8, so that each foot in depth which the water recedes below the flow-line a strip of bottom area from six feet to eight feet in width all around the reservoir will be exposed. The soil covering the reservoir site is a rather stiff clay forming a yellow loam where it has been longest cultivated. In the bottom and along the axis of the stream the clay is a close blue clay with a very shallow black loam covering it. At the eastern and southeastern sides of the reservoir site, where the land has not been cultivated and is still in either timber or brush, the top soil for from two to 10 inches in depth is a black wood muck. The water which I saw in the stream flowing through this reservoir site was very clear, but had a strong brownish-green color. As there had been a rain a day or so, and as some timber and brush had been cut on the drainage area during the past year, it is not improbable that the color of the water originated in the decaying vegetation incident to the cutting.

Concerning the steps to be taken to prevent the water from being colored and enriched with organic matter from the humus in the soil, the effort should be made to remove as much of this humus as possible before the reservoir is filled. On the timber and brush portions above referred to the only sufficient means will be the entire removal of the black muck wherever it is found by scraping and hauling to a considerable distance above the flow-line. On this portion also the roots, stumps and logs, as well as the brush, should be either burned or hauled outside the flow-line. Stumps which are below the lowest probable draught line may safely be left, as they will not decay materially. I have already recommended to you while at Port Jervis that the entire reservoir site which can be cultivated should be sown with a crop of grain of the variety that will most strongly deplete the soil of its humus. Probably buckwheat or drilled corn would be the most effective grain available, and its value would more than pay the cost of the work. After the crop is removed the entire area which can be reached with plows should be deeply subsoiled in order that the richer part of the loam shall be turned under and covered as deeply as possible with a covering of clay from the subsoil. Before this subsoiling is done the top soil, or at least the upper and richer layers of it, should be stripped off and removed above the flow-line by scrapers for an area covering a strip all around the reservoir reaching from a few feet above the flow-line to a distance below that line as low as the water will probably be drawn down. The subsoiling will then leave this strip, which is the most important part of the reservoir bottom, fairly well protected.

If the measures here recommended appear to be rather extensive, it may be said that they are even less radical than are sometimes stipulated, and their object is solely to obviate the very common trouble experienced with earth reservoirs, viz., the development of vegetable life in the water and on the bottom of the reservoir to an extent that disagreeable odors and even tastes are produced which often render the water extremely disagreeable at certain periods of the summer season. The source of the odors and tastes is also partly animal life of a low order, whose existence is encouraged and made possible, the same as the vegetable life, by the organic matter which the water dissolves out of the old soil.

I am, dear sir, very truly yours

OLIN H. LANDRETH

AMENIA

Water supply

AMENIA, N. Y., *July* 10, 1900

B. T. SMELZER, *Secretary State Board of Health:*

Dear Sir—At the request of our local water company I write asking you to send to Amenia an engineer to decide upon the location of a pumping station, the water company to pay the expenses of same. The question is simply one of sanitation, and the company is desirous of meeting all desirable requirements.

An early reply will greatly oblige the water company as well as our local health authorities.

Very truly
L. E. ROCKWELL
Health officer

Amsterdam, N. Y., *July* 23, 1900

B. T. Smelzer, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Permit me to formally report in writing the result of my visit to Amenia regarding the selection of an additional water supply to that now furnished by the Amenia water company. I find these facts:

The water company takes its supply from an impounding reservoir on the hills southwest of the village. The quality is very good, but the supply is affected by dry weather of summer to such an extent that the company must quickly find more water. Amenia lies in a valley fairly broad and flanked with high hills on the east and southwest. The stream draining the water shed flows southerly, and at this point is a mere brook. I am informed the brook never runs dry, there being several perennial springs maintaining small feeders to the brook above the village.

Two of the water company's plans are to sink wells by the side of the streams: first, near the main stream as it runs through the village; second, near one of the small tributaries on the outskirts of the village. I am of the opinion that either of these plans would provide a source of good, potable water. An objection to the second plan, however, is that its course runs contiguous to the village cemetery. I think the objection is one of sentiment, chiefly, as the stream appears to be further away from the cemetery than the limits for contaminating things defined in the rules and regulations for protecting various public water supplies made by the State Board of Health.

A third proposal of the water company, however, avoids any of these features of possible contamination.

On the level ground of the valley within the village limits is a brickyard. The whole flat is said to be underlaid with brick clay beginning just below the surface mould and extending down for 25 feet or more. Underneath is a water-bearing gravel.

In the operations of the brickyard a pit had been dug some 60 to 100 feet in diameter and with almost vertical side slopes, 25 feet deep. The excavation for clay had reached the water-bearing strata, when the bottom broke through and the pit filled to the brim despite the efforts of steam pumps to empty it. The pit is now a pond of pure, wholesome water, without any surface water running into it and no other sources of contamination that cannot be easily controlled.

The water company proposes to place a steam pump near this pond, connect it with a main nearby and pump directly into the distributing system.

I concur with the selection of this third method as a satisfactory means of keeping up the supply during the summer months.

The water company should make arrangements with the brickyard people to permit the proper enclosing or fencing of the pond to keep away bathers and lessen the opportunities of casting rubbish into it.

Very respectfully
C. W. ADAMS
Consulting engineer State Board of Health

WHITE PLAINS

Water supply

ALBANY, *September* 17, 1900

Hon. C. W. ADAMS, *Consulting engineer State Board of Health:*

Dear Sir—At the request of J. T. Lockwood, of the White Plains water works company, you are directed to visit White Plains some time convenient to you, before Friday of this week, for the purpose of examining a newly constructed dam to be used in connection with the water supply of the village of White Plains.

Your bill for services and expenses will be paid by the water works company. Upon your arrival at White Plains, Mr. Lockwood will conduct you to the works.

A meeting of the State Board of Health will be held at the Imperial hotel, New York city, on Thursday, the 20th instant, at 1.30 o'clock, which you may wish to attend.

Very respectfully
BAXTER T. SMELZER
Secretary

UTICA, *September* 27, 1900

Hon. B. T. SMELZER, *Secretary State Board of Health:*

Sir—Pursuant to your directions, I visited White Plains, N. Y., September 24th inst., for the purpose of inspecting the new reservoir now being built by the water commissioners of White Plains, the inspection by a representative of the State Board of Health being requested by J. T. Lockwood, secretary of the water commissioners.

The members of the board, including John M. Digney, president; J. T. Lockwood, secretary; John P. Moran and F. C. Schirmer, with the engineer, John M. Farley, and the counsel, H. T. Dykman, accompanied me in the inspection of the reservoir and the water works plant. They explained the situation of things. Later, with the engineer, Mr. Farley, I looked over the plans and maps pertaining to the reservoir and he furnished me a copy of a map which showed the relation of the reservoir and the water works plant. It accompanies this report.

In 1886 a private company built the system of water works now in use. They selected, as the source of supply, the water obtained by sinking a series of wells on an area of level land some 23 acres in extent, located in the extreme suburbs of the village. The company built a stand pipe, a pumping plant and a distributing system. Eight or 10 years later the village determined it should control its own water supply. A provision of the statute required that if White Plains desired municipal ownership of its water supply the vested rights and property of the company then furnishing the town with water must be purchased. Hence, in 1896, the water commissioners, on behalf of the village of White Plains, began proceedings to condemn the plant of the water company. An award was made and under it the commission took possession of the plant and operated it. The water company contested the award, the amount of compensation being unsatisfactory. It is still in litigation. The village has spent a lot of money in this legal contest, and it has brought out very full information as to the rainfall, the watershed area apparently supplying the wells, the character of subsoil through which the water filters into the wells, the amount of water they may be relied upon to furnish and its quality.

The quality of water has always been satisfactory. To maintain it in this condition the board of water commissioners have shown a degree of care that is unusually keen and comprehensive. Where the source of the water supply of the municipalities of our state is a natural body of water, the authorities generally stop in their efforts at absolute control of the watershed at the purchase of a strip of land adjoining or surrounding the lake. But the White Plains commissioners have taken steps to purchase outright the entire watershed above the reservoir dam, the purchase being complete in the case of nine parcels of real estate and condemnation proceedings under way in the remaining 46 parcels.

The 22 acres of level land in which the several wells are sunk has a surface drainage area of 700 acres. Tompkins brook, a small stream, is its main feeder. The topography of the watershed of this brook is hilly, with considerable woodland, quite uninhabited, and the ground is rock, sand and gravel.

The continual pumping reduced the supply of ground water to such an extent that the water commission determined to increase it. Being in possession of a plant already installed and in operation furnishing a supply of filtered water satisfactory in quality and sufficient in quantity for nearly the whole year, the commission wisely chose the plan of augmenting the supply by building a reservoir on the same Tompkins brook, the flow from which produces the present supply, and storing in it the water which in winter and spring is in excess of the capacity of the ground water basin to hold. It flows to waste.

The plan adopted, and put under contract in 1899, comprised the building of a dam of Portland cement concrete faced with granite ashlar both front and back, with suitable gate house and a 16-inch pipe line leading from it to the filtering well which now supplies much of the water for the suction well as now in use, or the water can be discharged onto the surface of the basin and filter through its subsoil into the filter wells.

The lawsuit mentioned disclosed the facts, by the testimony of experts, that the watershed above the basin, some 700 acres, based on its topography and the rainfall of 46 inches per year, should yield 700,000 to 800,000 gallons per day, that might be pumped from the filtering wells. They actually pump now about 600,000 gallons. The balance of the rainfall, 1,600,000 to 1,700,000 gallons per day provides for the evaporation, vegetation and run-off or waste.

Half of the basin watershed is above the reservoir, the capacity of which is about 100,000,000 gallons. If the run-off or waste be allowed at the low rate of two-tenths of a cubic foot per second per square mile of watershed, this reservoir would fill during the year.

The project of building this reservoir seems a wise move. The masonry is very well built and all precautions that experience suggests have been taken to make the walls tight, strong and safe.

The area of 14 acres above the dam, to be flowed, has been partially grubbed and cleared. At the time of my visit it was almost covered with weeds and grass. The central portion of less than one acre is swampy and is overlaid with muck of varying depth.

This vegetation should certainly be removed, and the muck be covered with a layer of puddled clay and gravel, before being flooded. The specifications seem to require this, and the contractor, I was told, claims to have done all that was required. Whether this be so or not, in its present condition the reservoir should not be filled, and in the interests of the public health the State Board of Health should so advise the local board of health.

In conclusion, I may be permitted to suggest as appropriate action for the State Board of Health, a resolution in terms similar to the following:

Whereas, The water commissioners of White Plains, N. Y., having, through the secretary of the Board, requested of the State Board of Health, visit, inspection and report by its representative upon the condition of a certain new reservoir now nearly ready to be brought into use as a part of the water supply system of the village of White Plains, and such report by one of the consulting engineers of this board, Campbell W. Adams, having been presented, be it therefore,

Resolved, That in view of the statements contained in said report, and the conditions it describes regarding said reservoir, this Board would advise the water commissioners of White Plains to carry out the suggestions contained in said report, as a reasonable effort and necessary step to maintain the purity of the public water supply of the village, and also

Resolved, That the local board of health of White Plains, N. Y., be urged to see to it that such action be taken as is required by the premises.

Resolved, That a copy of this report and resolutions be transmitted to the water commissioners and the local board of health.

Respectfully submitted.

CAMPBELL W. ADAMS
Consulting engineer State Board of Health

ALBANY, *October* 20, 1900

J. T. LOCKWOOD, *President Board of Water commissioners, White Plains, N. Y.:*

Dear Sir—I enclose herewith for the information of the board of water commissioners of White Plains, N. Y., a copy of a report made by C. W. Adams, upon his examination of the new reservoir now being constructed by them.

Particular attention is called to the recommendations made by Mr. Adams, that the " water commissioners of White Plains carry out the suggestions contained in said report, as a reasonable effort and necessary step to maintain the purity of the public water supply of the village."

It is requested that you inform this Board of such action as may be taken by the water commissioners on the report of Mr. Adams.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *October* 20, 1900

GEORGE H. MAGNESS, M. D., *President Board of Health White Plains, N. Y.:*

Dear Sir—I enclose herewith, for the information of the board of health of White Plains, a copy of a report made by C. W. Adams, upon his examination of the new reservoir now being constructed by the water commissioners of White Plains, N. Y.

Particular attention is called to the recommendations made by Mr. Adams that " the local board of health of White Plains, N. Y., be urged to see to it that such action be taken as is required by the premises."

It is requested that you inform this Board of such action as may be taken by the local board of health on the report of Mr. Adams.

Very respectfully
BAXTER T. SMELZER
Secretary

TYPHOID FEVER AT EAST HAMPTON

ALBANY, *October* 25, 1900

To the State Board of Health:

Report regarding the alleged prevalence of typhoid fever at East Hampton and vicinity, Suffolk county, was made October 14th by Dr. J. Finley Bell of that place, with a request for an investigation, which was soon after made.

East Hampton is an incorporated village of about 2500 population which is doubled during the summer by non-residents; four miles east is the smaller unincorporated village of Amagansett, and 10 or 12 miles further is Montauk near which in the late summer of 1898 was Camp Wyckoff where soldiers brought from Cuba were for a time encamped.

East Hampton is partly supplied with water from a public supply derived from a driven well a little distance away, partly by local wells. The soil is sand or loose gravel or a light micaceous yellow clay under light alluvium. There is no sewerage system.

Typhoid fever is said to have been of yearly occurrence hereabouts, generally every year, for an indefinite period, one to four cases developing. For the last three years it has had greater prevalence, especially in East Hampton, and in an unsanitary locality to which reference will be made, and where indifferent care was taken of the excreta.

This year the disease recurred; two cases developed in June, and the last of August there set in a prevalance which continues to the present time. I have notes of 25 cases the details of which I secured from Dr. Bell, in whose company I visited most of the cases under his care, and likewise with Dr. Lewis, another local physician, I saw his cases; I also went to Amagansett and saw a number of cases with Dr. Finch of that place. I called on the only other local practitioner, Dr. Osborne, who is town health officer and whose company unintentionally I failed to secure in

his
to
ave
er;
the
lity
ave
ett

rile
lds,
or
se.
ne
ion
ily
ing
ks
of
rth
ng
tly
se
ew
ia-
ed
tes
res
li-
as

ed
th
n-
nd
ky

To t

Re

East

14th

inve

Ea

tion

mile

and

sum

Cuba

Ea

supp

by l

mica

age

Ty

abou

cases

prev

local

care

Th

and t

to th

I sec

cases

phys

a nu

only

office

the investigation; he expressed the opinion that cases under his care were of malarial fever, not typhoid. It is not necessary to this report to detail the cases seen. In East Hampton they have developed from time to time through September and October; there was a rather abrupt commencement of the outbreak the last of August and most numerously in the unsanitary locality of Cedar street, where the two June cases occurred; they have been scattered throughout the village since then; in Amagansett there was also a general distribution.

The principal question is as to the diagnosis. Is this febrile outbreak one of malarial fever, as the health officer holds, or is it typhoid fever? Many of the cases had partially or entirely recovered, or were in advanced stages of their disease. Regarding these I found that their sickness was or had been one of continuous fever, running a definite course of varying duration but usually of several weeks. From nurses who had kept daily records I found the temperature sheets showed a curve increasing continuously and maintained without material fall for two weeks or more, and the defervescence was gradual; there were cases of recurrence of the fever after complete defervescence in the fourth week; there was uniformly morning remission and evening exacerbation; a high range, 104 or above, was not infrequently reached. There was anorexia and a history in some of loose yellow evacuations, constipation being a condition of not a few however. There was pretty generally evidence of some emaciation of recovered or recovering subjects, and anaemia. Progressed cases of severity showed apathy, loaded tongue and tympanites occasionally. Most cases were fairly mild although temperatures were rather excessive for typhoid fever. One case was complicated with pneumonia and severely ill; in a child there was attendant hip joint disease.

The outbreak was found then to be one of prolonged continued essential fever. One or two cases I found at about the eighth day of illness. The history was that of lassitude, anorexia, general malaise increasing daily until for three or four days they had been compelled to remain in bed. There was fever, apathy, dusky skin, in one perfectly typical petechiae on the abdomen, commencing loose ochre stools and right iliac gurgling on pressure; no one could question typhoid fever here.

Further, in his cases Dr. Bell reported having secured the Widal reaction on repeated test. I asked him to send me blood samples from his own and other patients, which he kindly has done, and these have been tested at the Bender hygienic laboratory, the director of which, Dr. George Blumer, reports as follows:

"The slides containing the blood from suspected typhoid cases have been received and Widal's test made with the blood. The test was made with a dilution approximating as nearly as possible 1 to 25. This figure is only approximate, as it is of course impossible to make absolutely accurate dilutions with the dry method. The preparations were each of them observed for two hours, if necessary. In eight cases a distinct and positive clumping and loss of motility showed within one hour. Three cases were negative at the end of two hours; in each instance the reaction could not be classed as entirely negative, as there was some attempt at clumping; however, in all of them the motility of the typhoid bacillus was unimpaired. In six slides sent a day or two later the reaction in all was positive; with four it occurred within one hour, the other two reacted within two hours. There seems no doubt however that all the cases are typhoid fever."

Dr. Blumer thus reports on blood samples from 17 cases, giving the names of each subject which need not be detailed here. Da Costa reports that Widal is trustworthy in 92 per cent of cases, and the department of health of Chicago recently reports but 3.3 per cent of failures in diagnosis.

Certain of these patients, non-residents, were sent home for treatment, to New York hospitals and elsewhere and the diagnosis of typhoid fever is said to have been made, and there was concurrence in this diagnosis by physicians from outside who saw the sick at East Hampton.

I need not say that the diagnosis is beyond a question that the outbreak is one of typhoid fever. The reason for dwelling thus elaborately with it is that it has not been concurred in by the health officer. His diagnosis was of malarial fever, and he based it on a limited number of cases which he saw professionally, but the symptoms of these as he gave them to me were certainly not of malarial fever, but were those of a continued fever, and among them were nosebleed and hemorrhage from the bowels. Blood examinations of other cases than his were made by Dr. Bell, who informs me that the results were negative as to malarial fever, and malarial fever has not heretofore been common in the vicinity, to which the health officer agreed. I asked the health officer to send me blood samples from his patients for Widal's test, but he has declined to do so. The local board of health has taken no action in regard to this outbreak, has made no investigation into it nor required report of cases from the local physicians, accepting the advice of the health officer as to its nature. The health officer has been derelict in his duty, in that, knowing of the existence of a seriously prevalent fever, he has not attempted to see cases generally, to investigate the outbreak, nor heeded the unanimous opinion as to its nature of other physicians nor taken any steps toward, so far as possible, controlling it. I informed him quite positively as to what the State Board of Health would regard as his duty and would expect his board of health to do.

The etiology of this outbreak has partly to do I am certain with carelessness in the disposal of discharges from the patients early in its course. Apparently no care whatever was taken to either disinfect them or properly to dispose of them. The weather conditions also enter in as favorable to its development, as was stated in my recent report on a smaller outbreak in the neighboring village of Orient. It has been excessively dry all summer in this region, with some late summer rains. Germ-laden excreta thrown indifferently on the surface in June were thus ripe for infecting all sources of water supply. It appears to me that a part has been borne in this also by the extraordinary congregation of typhoid fever cases in this neighborhood that were brought here from Cuba to Camp Wyckoff in 1898. The exposure hereby to soil implantation of typhoid germs was not alone from the somewhat remote camp at Montauk point, for patients thence were taken into temporary hospitals and homes in East Hampton and Amagansett, and many people from this entire region went to the camp and found employment. This method doubtless served to make the large typhoid death rate of numerous more remote localities in the eastern part of the state which occurred in 1898, which large death rate was not swelled by the many deaths in camp, for as non-residents these latter were not counted into our state total. As stated, the disease has been more than usually prevalent hereabouts for the years since.

Incidentally I should report an exceedingly filthy and unsanitary condition, which together with the carlessness of the residents thereof has altogether helped on this outbreak, on Cedar street in East Hampton. The condition is most filthy and the local board of health seem to have done nothing to compel its abatement as a nuisance of menace to public health. This has been a chief center for the disease.

The remedy for conditions that exist is for the health authorities to require the most absolute possible disinfection of typhoid discharges and their proper disposal, to which end to require the report of every case. Otherwise helped by future weather conditions this soil-infected locality will establish typhoid fever as an endemic of indefinite recurrence.

Sterilization of water from whatever local source should be made, and the people informed of its necessity. I have had samples of water sent from there which are being tested bacteriologically, but apart from what may be learned in the laboratory the test has already been made clinically of them. The rôle of drinking water in connection with typhoid fever need not now be emphasized.

Unsanitary conditions should not be allowed to continue for they favor the prevalence of any zymotic disease.

East Hampton is important enough and its interests large enough to become an incorporated village. Its health affairs could be better conserved thus through local interest, than through a town board of health which has the care of a large township outside of its precincts. Its prospects for the future could thus be materially bettered.

I desire to express my obligation to Dr. J. Finley Bell for much assistance in my investigation.

Very respectfully

F. C. CURTIS

BENDER HYGIENIC LABORATORY,

ALBANY, N. Y., *October* 29, 1900

BAXTER T. SMELZER, *Secretary of State Board of Health, Albany, N. Y.:*

Dear Sir—The slides containing the blood from suspected typhoid cases were received, and Widal's test has been made with the blood. The test was made with a dilution approximating as nearly as possible 1 to 25. This figure is only approximate, as it is, of course, impossible to make absolutely accurate dilutions with the dry method. The preparations were each of them observed for two hours, if necessary. In most instances the reaction had occurred within an hour. The following cases showed a distinct and positive clumping and loss of motility within one hour: Ella Brown, Mary Strong, Alex. Brown, Fred Dayton, Mrs. Jos. Card, Ruth Bennett, Susan Butler and Ruth Leggett.

The following three cases were negative at the end of two hours. In each instance the reaction could not be classed as entirely negative, as there was some attempt at clumping. In all these cases, however, the motility of the typhoid bacillus was unimpaired. Cases reacting in this way were Carrie Hand, Theodore Hand and Mrs. A. M. Edwards.

Respectfully submitted.

GEORGE BLUMER

Director

Bender Hygienic Laboratory,

Albany, N. Y., *October* 31, 1900

Baxter T. Smelzer, *Secretary of State Board of Health, Albany, N. Y.:*

Dear Sir—Regarding the Widal test in the case of the blood sent to me on the 29th I would report as follows:

The test was made in the usual manner, the dilution being approximately 1 to 25. The slides were watched for two hours. The following cases were observed: Elmer Collins, Bertha Field, A. Jaffa, Raymond Card, Claude Card and John Card. The reaction was a positive one in all cases, but did not occur in all with the same rapidity. The cases of Elmer Collins, Bertha Field, A. Jaffa and John Card reacted within one hour. The cases of Raymond Card and Claude Card took a much longer time, almost two hours. There seems to be no doubt, however, that all the cases are typhoid fever.

Respectfully submitted.

GEORGE BLUMER
Director

Schenectady, N. Y., *January* 21, 1901

Baxter T. Smelzer, *Secretary State Board of Health, Albany, N. Y.:*

On January 15th you requested me to visit the village of East Hampton, N. Y., to investigate the immediate causes of the recent prevalence of typhoid fever in that village, and to submit a report as to the steps which should be taken by the local authorities to stop the further spread of the disease and to stamp it out.

I beg to submit the following report of my examination, with certain recommendations as to the steps desirable to be taken by the local authorities for both immediate and ultimate relief and improvement.

I reached East Hampton on the evening of January 18th, and spent the most of the day following in an examination of the existing circumstances and conditions. I met and had interviews with Joseph S. Osborne, the clerk of the town board of health of East Hampton, George A. Miller and Mr. Sherrill, members of the board, also Dr. Lewis and Dr. J. Finley Bell, practicing physicians, all of whom gave valuable information.

The village of East Hampton is still unincorporated and hence its sanitary affairs are under the jurisdiction of the town board of health of the town of East Hampton. The village has a permanent population of a little over 1000 people and a summer population of more than double that number, its proximity to the seashore making it an attractive summer resort for residents of New York city and vicinity, many of whom have homes in the village which they occupy for several months of each year. The water supply is from the ground-water, found at depths, varying with the surface topography, from 12 to 30 feet. The greater part of the inhabitants use water from private wells excavated or dug to the ground-water, while a small part of the population use water from the public supply, owned by a private company, also taken from the same body of ground-water by a large well or pump-pit excavated nearly to the ground-water level. There has been no opportunity to have examinations made of the public or private water supplies. Their depths below the surface would indicate a probable protection from surface contamination, except through the well openings themselves, though the soil itself is quite porous in all parts of the village except in the immediate bottom or depression of a small stream where the soil appears to be impervious from muck and fine clay. In other portions of the village there are no visible signs of surface drainage, the water falling as rain disappearing by percolation into the soil.

There is no sewage system in the village: The old style privy vault in its usual condition is the prevailing means of disposal, though several of the residents from New York in the village and vicinity have introduced the "Waring" system of subsoil disposal or so-called "irrigation." Some steps, unofficial in character, have been taken to secure a survey for a sewer system, though the problem of the final disposal, which appears to be a rather difficult and exceedingly important one here, has not been settled nor fully considered.

Although typhoid fever has occurred here for many years, the numbers of such cases have been no greater but rather less than in most places in the state, and the present outbreak appears to have had little connection with the normal cases. At least the outbreak is sufficiently accounted for by other causes and as the proposed remedial steps would be the same from whichever of the two causes, it is not worth while to spend much time in securing absolute certainty in the determination of the causes. East Hampton is but 15 miles from Montauk point, the site of the U. S. army camp for the troops returning from Cuba during and following the Spanish war in 1898. Being of easy access by rail from the village of East Hampton, constant and general intercourse was kept up between the people of East Hampton and the camp. Many working people from East Hampton were employed in various capacities at and near the camp. Bedding, clothing and othr articles from the camp were brought to the village, and two local hospitals were fitted up and maintained at East Hampton, by the citizens of the village, for sick soldiers from the U. S. camp. The first results of the intercourse so far as it affected the health of the village were numerous cases of tropical dysentary which occured during the fall of 1898. One case of typhoid fever also occurred during August 1898, the patient having been at the camp previously. There was a long delay in reaching the final diagnosis of the case during which time the excreta were thrown in the privy and afterward they were during the continuation of the case disposed of by throwing in an old pigpen. The next cases were situated about 500 feet distant and down the slope of the valley from the first case, and occurred in July, 1899, and were followed during that fall and early spring of 1900 by one or two other cases at the same point. Later in the season of 1900 several other cases occurred at points not very remote from the 1899 cases, and within 600 feet of the site of one of the hospitals where several soldiers were sick with typhoid during the summer of 1898. A servant who worked at this hospital during the time the soldiers were there sick stated to me that the excreta were disinfected and removed daily and spread on the land outside the village. This was also the final disposal of the manure from the pigpen before mentioned, though the exact location of the land used for this purpose, it was not possible to ascertain within the time at my command at East Hampton.

Nearly all the cases of 1900 are within 800 feet from this hospital and lie in all directions from it. The site of this hospital is on a gentle rise or hill above all the points where the disease has occurred in 1900 and the soil there is loose and sandy.

There is little doubt, whatever may have been the means by which the infection reached East Hampton, that it became established there by soil implantation, and that it was disseminated from either one or both the 1898 centers either through the agency of percolation into the ground-water from which all the patients took a part at least of the supply, or through the air by the medium of dust blown by the winds. As the 1900 cases occurred rather compactly, it is not difficult to account for the spread of the disease, particularly as nearly all the physicians having treated cases there appear to have had full confidence in the immunity secured by the so-called disinfection of the excreta, and to have considered the ultimate disposition a secondary matter.

The majority of the 1900 cases have occurred in low situations; one important center being a piece of low ground lying in the bottom of a broad, shallow depression from which the drainage has been rendered very imperfect by the construction of the Long Island railroad through or across the depression, and the location of its only culvert, a castiron pipe, at an elevation altogether too high to permit proper drainage of this district. On the day of my visit the water was standing in a cellar of one of the houses in this district, the only one in the low portion having a cellar, at an elevation less than two feet below the general level of the ground in that vicinity. This district being low and very level and the soil a marshy muck, with some recent filling over it, and with neither proper drainage nor sewerage, the conditions around the houses may readily be understood to have been quite unsanitary, particularly as this is one of the principal "laundry" districts for the village. These conditions were undoubtedly important predisposing causes or agenciés in the typhoid outbreak or propagation in this district. A very unusual feature of the outbreak of typhoid fever during the season of 1900 has been its remarkable mildness. Of some 30 or more cases diagnosed locally as typhoid, there has been not more than one death, and there is much doubt as to whether the final cause of death in that case was typhoid or not.

Concerning the matter of remedial action, I have to recommend that the local authorities be directed to take the following steps to stamp out the disease and prevent a recurrence, fully believing that unless vigorous and prompt measures be taken the disease will develop into an epidemic from the existing centers during the coming season.

(1) That plans for a complete modern system of separate sewerage and sewage disposal be prepared at once, and that these and all other preliminaries to actual construction be completed in time for the construction of the system as soon as the season will permit.

(2) That the local board of health, from their own inspections or acting on the advice of an experienced sanitary engineer, shall determine what premises in the village and immediate vicinity, should, in the interest of the general health of the occupants and of the public, be at once connected with the sewer system, and that the board of health enact and issue the necessary regulations and orders requiring the owners or agents of all such premises to provide the necessary water-closets, water connections and house sewers and to connect the same with the public sewer system as soon as the sewers of the latter shall be laid in the streets on which such premises are situated.

(3) That in connection with the previous recommendation, the board of health shall have prepared, and shall enact and provide

for the enforcement and inspection of, a code of sanitary plumbing and sewering which shall govern all plumbing and sewering done in the village.

(4) That the local board of health, acting on their own inspections or at the advice of an experienced sanitary engineer, shall determine what premises may safely be allowed the option of connecting with the public sewer system, or of reconstructing or improving their present privies or cesspools, and shall determine and enact rules and regulations for the proper and sanitary operation, maintenance and inspection of the privies or cesspools of all such premises as do not connect with the sewers, and shall enforce the same.

(5) That the local board of health order and enforce the immediate cleaning out of all privies at all premises where typhoid has occurred during 1899 or 1900, and the placing of the contents so removed in shallow layers not exceeding four inches in thickness, in trenches not less than one, nor more than two feet in depth, the trenches to be immediately refilled with the earth removed therefrom or with other fresh earth or sand. Also that the privy vaults so emptied be filled up level with the surface of the ground with fresh, clean earth or sand, and new locations for the privies be made. This work should be done at once and during the freezing weather.

(6) That the local board of health provide a system of drainage by open ditches, or preferably covered tile drains, for the entire low district in which numerous cases of typhoid fever occurred during 1900, including the lowering of the railroad culvert, and if necessary to effect the complete drainage and lowering of the ground-water in the district, then the lowering and straightening of the stream after it passes through the railroad culvert.

(7) That the local board of health make, or have made by an experienced sanitary engineer, a critical sanitary examination of the surroundings of all wells at premises where typhoid fever has occurred during either 1899 or 1900, and of all wells near privies or places where the excreta from typhoid patients has

been placed during 1899 or 1900, and that such local board order and enforce the permanent or the temporary closing from use of all such wells as such sanitary examination may indicate as likely to be infected from such privies or places as above indicated. The evidence of chemical or biological analyses should be secured in the sanitary examination whenever the other evidence leaves the matter in doubt.

Very respectfully submitted

OLIN H. LANDRETH
Consulting engineer

SCHENECTADY, N. Y., *February* 28, 1901

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—In the matter of the sanitary improvements in the village of East Hampton, N. Y., as recommended in my report of January 21, 1901, I beg to report that I was requested by the board of health of the town of East Hampton to come there on the 15th instant to further advise the board as to certain points in the execution of the improvements which they had already commenced to carry out. Accordingly I visited the place at the time mentioned, spending parts of the 15th and 16th instants in examining the work already accomplished and in considering with the local board and the village engineer the further prosecution of needed improvements. My report of January 21st, you will recall, recommended to the State Board of Health that the local authorities be directed to carry out improvements under seven heads:

The first four related to the procuring of plans for an improved system of sewerage and sewage disposal to be installed at once and before the coming cottage season which begins on June 1st, and to steps to be taken in conjunction with the installation of such system. The fifth related to the thorough cleaning of all privies at premises where typhoid fever had prevailed during either 1899 or 1900; the burying of the matter removed, and the refilling with fresh earth, and new locations for such privies be chosen. The sixth related to the needed provision of surface drainage for the low district in the vicinity of Main street and Cullom road where several cases of typhoid fever had prevailed and where the surface was very low, the soil impervious and the drainage defective. The seventh related to the critical examination of all the wells in the village adjacent to premises where typhoid had occurred during the past two seasons, and the closing of such as should be found to be probably infected.

On my visit on the 15th instant I found that surveys for a system of sewers had been made, a feasible location for a system of disposal by filtration had been found, and the main features of the system blocked out by the village engineer, William H. Barnes. At the time of my visit, I found the authorities and leading business men of the place were considering the feasibility of securing the needed legislative authority and installing a sewer system by a private corporation to be formed among the residents, and to maintain the system by annual charges made on the premises connecting with the system. As the system will require pumping of the sewage to the disposal beds owing to the very flat grades at which the streets are laid out, and owing to the fact that the only apparently feasible location for the disposal system is on land lying at a higher level than the village, and as considerable annual expense will be necessary to maintain and operate the system, I was of the opinion that for the above and other reasons the system of private ownership was not one to be recommended even if at all feasible, and so advised against it, but instead recommended that if incorporation of the village was not now feasible, the construction of the system under the state law providing for sewers in unincorporated villages by the formation of sewer districts should be adopted. At the latest information the question was still being debated, and very prompt and active measures will need to be taken by the local authorities if the system, or even the pipe system, is to be completed before the cottage season fully opens, which is extremely desirable in order that the benefit of the sewerage therefrom may be realized later in the season when typhoid is most likely to occur. The later parts of the system can be constructed without harm to the residents, but the pipe-work should be completed and the back-filling and regrading should be out of the way as early in the season as possible, as disturbance of the soil in the public streets later in the season is to be avoided.

I also found that the local board of health were carrying out fully my recommendations regarding the cleaning of privies, and were even going back to premises where typhoid had occurred during 1898, a year farther back than I had thought necesary. It is proper to state in this connection, that many of these privies had been cleaned before, but refilling with fresh soil and removal to new sites had not been generally done. The local board of health were also arranging to have the systematic examination of the wells made. The survey for the drainage work needed in the low district above mentioned has also been made, and I understand that the improvements called for in this connection are to be made without delay.

Very truly yours
OLIN H. LANDRETH
Consulting engineer

ALBANY, N. Y., *March* 5, 1901

Prof. OLIN H. LANDRETH, *Consulting engineer, State Board of Health, Schenectady, N. Y.:*

Dear Sir—We are in receipt of your communication of the 28th ultimo, reporting upon a recent investigation at East Hampton as to certain points in the execution of the improvements which they had already commenced to carry out.

Very respectfully
T. A. STUART
Assistant secretary

ORIENT

Typhoid fever

SOUTHOLD, N. Y., *September* 28, 1900

To the State Board of Health:

By the authority and direction of the board of health of the town of Southold, Suffolk county, and as the health officer of that town, I have to present for your consideration the following statement:

For the past two years at the village of Orient, in said town, there have occurred more typhoid fever cases than has been usual anywhere else in this section.

Our local board of health has given its careful attention to these cases and so far fail to determine on any specific cause for them other than their being of endemic origin. At present there are five or six cases in that village and the people there have entered a complaint to us as to the drain of sewerage from a summer hotel, but we are doubtful whether that has any connection with the sickness, and as to our jurisdiction over it and what, if any, steps we should take regarding it. Our board concludes that it would be advisable in the interest of the public health as well as to pacify the citizens there, who are becoming a little panicky, and satisfy our own minds as to our duty and course in this situation, for you to send down a representative from your office at once to investigate and try to settle on some means of prevention.

If this suggestion meets your approval, whoever comes had better go at once to Greenport, advising me beforehand of the time of his arrival there, and I will meet him and afford him all the assistance and information in my reach.

Your immediate action seems to us desirable and we request the same as an urgent and important sanitary measure.

Respectfully yours
J. M. HARTRANFT, M. D.
Health officer

ALBANY, *October* 5, 1900

To the State Board of Health:

Six cases of typhoid fever originated in the village of Orient very nearly together during the first week in September, exciting apprehension in the minds of the people, and an appeal to the local board of health of the town of Southold, who in turn ask for the investigation of the State Board of Health, the result of which is herein reported.

Orient is a community of a few hundred population on the eastern end of Long Island between the sound and bay with little elevation above the water level. The soil is sand to an indefinite depth. The water supply is from private wells 25 or 30 feet deep, those near the bay fluctuating with the tide. Cesspools and common vaults receive the waste, and the general sanitary conditions are fully up to the average of villages of this type. It has a history of typhoid fever, generally every year one or more cases occurring in the fall.

The existing cases developed from the 1st to the 10th of September, and at various localities, one-fourth or one-half a mile apart. One is a young lady, now in the third week and seriously ill with the common symptoms of typhoid fever. She was taken with it at the house of a relative in the village where she had been for a few weeks; in this family there have been during last year and the year before several cases of typhoid fever, and other cases have occurred at times in other families living near. The wells hereabout ebb and flow with the tide, being near and not much above the bay. The soil is dry, though; there is no house drain or cesspool, but the slops thrown on the surface have not been allowed to make a surface sink. The discharges have in former years been buried in the ground of the house premises, and this has been the common method of disposal elsewhere, and is the method now followed here, generally with the prior use of some disinfectant.

In another family are two men sick with typhoid fever; one of them works on a farm two miles distant, the other works land near by, both living at home and both taken about the same time. There has been no typhoid fever before at this place. The well is near the house. There is no drain, slops being thrown about the surface and not generally far from the well. Discharges are put into an excavation 75 feet away and each time covered with dry earth. In another case, a child now nearly well, has had typhoid fever, there being no history of prior cases in this family. The well is 40 feet deep, the cesspool is remote and the drain to it is of earthen pipe not passing near the well. The privy vault is not near; the premises are in good sanitary condition.

Other cases presented similar conditions and surroundings, the common facts being of the outbreak at remote points of several cases of typhoid fever within a short time, having no relation to each other, no common water supply or drainage connection, no common milk supply and in fairly good sanitary circumstances. The case is one of repeated occurrence in the small rural communities throughout the state.

There is no cause special to Orient for these cases of typhoid fever. There was a suspected cause connected with the drainage from a summer hotel; this drain carried to the bay traverses an overflowed marsh and sewage escapes through the open tile joints into the swampy ground. This is not sanitary, but it had nothing to do with these cases.

The germs of typhoid fever in vital condition from a previous case must reach a susceptible intestinal tract to cause the disease; the medium for their entry is drinking water, rarely anything else. The soil of this village has been implanted with these germs year after year. In the soil they find a place more favorable than any other outside of the body for their continued vitality for a long time. Every year one or more new cases are developed. But a dry summer, such as this, has favored their growth—we have long known that dry summers are followed by increase of typhoid fever. There come, as did here, a few sharp showers in August; the germs perhaps brought to higher vitality by the lower level of ground water, are carried by the underground currents to all the wells and streams of the vicinity, and all to which they are carried become the possible sources of the disease. This, I believe, is the rationale of such outbreaks as this. After a time the well becomes free of the typhoid germs, for they will not live indefinitely in water.

How such a condition can be remedied is not easy to say. Generally now attempts are made to sterilize discharges from typhoid fever patients, and if this could be done absolutely there would be the solution, but it probably never is. After being implanted in the soil they can not be reached. It would be safest to deposit them elsewhere than in the soil, which of all is the place where they live longest, but in the country this is not easy to avoid. In some way there should be absolute destruction of all typhoid discharges while they are still under control and by so doing our rural towns would escape the yearly recurrence of the disease.

Respectfully
F. C. CURTIS

TYPHOID FEVER IN SYRACUSE STATE INSTITUTION FOR FEEBLE-MINDED CHILDREN

ALBANY, *September* 8, 1900

To the State Board of Health:

An inquiry was made to-day by Dr. S. Case Jones and Dr. Frederick W. Smith, members of the State Board of Health, and myself, into the unusual prevalence of typhoid fever in the state institution for feeble-minded children at Syracuse since the middle of August.

The cases occurred within three weeks, almost daily save for a break of six days, and they were distributed, with certain exceptions, generally through the institution. August 14th the first case occurred, a boy who had been for a month at the farm, some distance away in the country; August 15th the resident physician, who has been here since July 1st, was taken; on the 20th a boy inmate residing in the main building; 21st, a boy residing in a detached building known as the farm house; 23d, two girls, main building; 24th and 25th, two boys, north wing of main building and a girl in another wing of main building. Then with a break of a week there were on the 31st, September 1st, 3d and 4th, five cases, one a girl, two boys in the main building and two boys in the farmhouse.

This main building consists of wings connected to a central administrative building by corridors and the farmhouse is on the grounds apart from it; there is also a detached house known as the girls' building in which no cases developed. The inmates now number 500, about 75 being absent on vacation; their ages are from 10 to 23. They are divided into classes, residing in the various wings and buildings, with one common dining-room.

In 1892 there was a serious outbreak of typhoid fever here (72 cases), which was investigated by this Board; for two years before there had likewise been a number of cases (20 in 1891). Since then there have been four or five cases each year.

Prior to about 1895 the water supply was from a private source; since the Skaneateles lake supply was introduced for the city it has been used by the institution. The old supply was condemned as probably contributing to the excessive prevalence of typhoid fever in 1891-2. There are cisterns, long ago built, which are used mainly for the laundry; there is but one pump for cistern water, in a wash room of the main building, but Dr. Carson, superintendent, is confident that it is never used to drink, and the only class who use this wash room has escaped having the disease. The possibility of infecting old cisterns from typhoid infected soil or from leaking drains is little less than that of a well, and the water from these cisterns ought not to be allowed for drinking, although new iron drains have generally taken the place of the imperfect ones found in 1892, and the hospital discharges are disinfected and emptied into the water-closets and not buried about the grounds.

Ice for the institution this year has been cut from an old city reservoir not now in use but receiving water which flows from the former source of supply of the institution, the Onondaga hill reservoir; also water from certain brooks, one of which is reported to have had last year cases of typhoid fever on its watershed. The inmates do not get ice water, but they have followed the delivery cart and eaten pieces of it, especially during the hot weather of early August. Coming under suspicion the ice was stopped, save for cooling purposes, and following this new cases ceased to develop; also among certain low-grade inmates who never had ice in any way there have been no cases. Though the evidence is not entirely satisfactory, there is some reason for attributing the excessive prevalence of typhoid fever now to this source, especially as the ice was cut from water heretofore found infected. We have provided for a bacteriological analysis of this water.

The water supply of the institution is that of the city of Syracuse, from Skaneateles lake, introduced about 1895. The deaths reported from Syracuse for the 10 years, 1890-9, have been for each year in succession: 29, 44, 30, 29, 41, 29, 30, 21, 45, 26, or about the rate of 35 deaths yearly per 100,000 for the first five years and 30 for the last five years. If these 30 deaths a year since 1895 represent a typhoid morbidity of 300 cases a year, that of the institution may be said to have been proportionately over 400 under average conditions, though deductions for the small figures of two or three cases a year are not to be taken without allowance. It would seem nevertheless that the normal typhoid morbidity of the institution is larger than that of the city. The reasons for it are not clear, but should be looked for in the direction of the water and ice supplies and the general care of the sick. It must be local in origin, that is, the cases can, few, if any of them, be traced to importation. We need not say that the phenomena exclude the possibility of its originating from the milk supply.

Respectfully
F. C. CURTIS

BACTERIOLOGICAL EXAMINATIONS OF SPECIMENS OF MILK MADE FOR DR. J. C. CARSON, OF SYRACUSE, N. Y., MADE AT THE INSTANCE OF DR. SMELZER, OF THE STATE BOARD OF HEALH

SPECIMEN NO. 1, MARKED "DARROW'S MILK"

Quantitative examination—There were 14,500,000 bacteria per cubic centimetre of milk as cultivated on agar-agar plates at 37° C. There were 12,600,000 bacteria per cubic centimetre of milk as cultivated on gelatin plates at 25° C. The average 13,550,000 bacteria per cubic centimetre of milk.

Theobald Smith's fermentation test—Five fermentation tubes were inoculated each with one cubic centimetre of milk. There was 10% of gas formation in all of the tubes, associated with a marked acid reaction.

Qualitative examination—The bacteria present in this specimen of milk were of the non-pathogenic varieties. There was no evidence whatever of the presence of any bacteria which might explain the occurrence of intestinal disturbances in the case of individuals using the milk.

SPECIMEN NO. 2, MARKED "FAIRMOUNT MILK"

Quantitative examination—There were 13,750,000 bacteria per cubic centimetre of milk as cultivated on agar-agar plates at 37° C. There were 11,500,000 bacteria per cubic centimetre of milk as cultivated on gelatin plates at 25° C. The average was 12,625,000 bacteria per cubic centimetre of milk.

Theobald Smith's fermentation test—Five fermentation tubes were inoculated each with one cubic centimetre of milk. There was 10% of gas formation in each of the five tubes, associated with a marked acid reaction.

Qualitative examination—The bacteria present in this specimen of milk were found to belong to the non-pathogenic species, and no evidence of the presence of any bacteria responsible for an intestinal infection could be discovered.

BACTERIOLOGICAL EXAMINATIONS OF SPECIMENS OF WATER MADE FOR DR. J. C. CARSON, OF SYRACUSE, N. Y., MADE AT THE INSTANCE OF DR. SMELZER, OF THE STATE BOARD OF HEALH

SPECIMEN NO. 1, LABELED "FAIRMOUNT WATER"

Quantitative examination—There were 37,300 bacteria per cubic centimetre of water as cultivated on agar-agar plates at 37° C. There were 41,400 bacteria per cubic centimetre of water as cultivated on gelatin plates at 25° C. The average was 39,350 bacteria per cubic centimetre of water.

Theobald Smith's fermentation test—Five fermentation tubes were inoculated each with one cubic centimetre of water. There was 35% of gas formation in one tube, 10% of gas formation in one tube and no gas formation in three tubes. There was an alkaline reaction in the tube with 35% of gas formation and an acid reaction in the other tubes.

Qualitative examination—In addition to the ordinary water bacteria this specimen of water was found to contain varieties of bacteria producing rapid liquefaction of gelatin. There was, however, no positive evidence of the presence of the typhoid or colon bacilli.

SPECIMEN NO. 2, LABELED "INSTITUTION WATER"

Quantitative examination—There were 90 bacteria per cubic centimetre of water as cultivated on agar-agar plates at 37° C. There was 390 bacteria per cubic centimetre of water as cultivated on gelatin plates at 25° C. The average was 240 bacteria per cubic centimetre of water.

Theobald Smith's fermentation test—Five fermentation tubes were inoculated each with one cubic centimetre of water. There was no gas formation in any of the tubes.

Qualitative examination—This specimen of water was found to contain only the non-pathogenic varieties of water bacteria.

SPECIMEN NO. 3, LABELED "INSTITUTION ICE"

Quantitative examination—There were 220 bacteria per cubic centimetre of water as cultivated on agar-agar plates at 37° C. There were 790 bacteria per cubic centimetre of water as cultivated on gelatin plates at 25° C. The average was 505 bacteria per cubic centimetre of water.

Theobald Smith's fermentation test—Six fermentation tubes were inoculated each with one cubic centimetre of water. There was no gas formation in any of the tubes.

Qualitative examination—This specimen of water was found to contain only the non-pathogenic varieties of water bacteria.

GENERAL CONCLUSIONS

Although the number of bacteria per cubic centimetre of milk is somewhat excessive, this fact would appear to be explained by the time which had elapsed in transporting the milk, as well as the exceedingly warm weather during which it was sent to the laboratory. There was no evidence whatever in either specimen of milk of the presence of the typhoid or colon bacilli, or of any other bacteria which might be assumed to be the cause of acute intestinal infections.

The specimens of water labeled "institution water" and "institution ice" conformed to all the requirements of a first-class drinking water, and in neither of these specimens was there any evidence whatever of the presence of any pathogenic bacteria. The number of bacteria per cubic centimetre in both of these specimens is exceedingly low when the fact is considered that more than 24 hours in very warm weather elapsed between the time the specimens were taken and the cultures made.

The specimens of water labeled "Fairmount water" contains a far greater number of bacteria per cubic centimetre of water, 39,350, than should be present in a safe drinking water. Furthermore, the presence in this specimen of water of bacteria producing rapid liquefaction of gelatin is also presumptive evidence that the source of the water has been in some way contaminated. It is, therefore, our opinion that the specimen labeled "Fairmount water" is not a safe drinking water, although we were unable to isolate from it either the bacillus typhosus or the bacillus coli communis.

ARTHUR W. ELTING

BENDER HYGIENIC LABORATORY

ALBANY, N. Y., *September* 26, 1900

BAXTER T. SMELZER, *Secretary of State Board of Health, Albany, N. Y.:*

Dear Sir—Herewith find report on the water from the asylum for feeble-minded children at Syracuse, N. Y.

Number of bacteria to the cubic centimetre on agar plates, 4000; gelatin plates, 200; average, 2100. Theobald Smith's test shows gas formation in each of 10 tubes inoculated with 1 c.c. of water. In four of these tubes the amount of gas is between 45 and 50 per cent, and the reaction is strongly acid. The qualitative examination shows the presence of the bacillus coli communis, as well as the ordinary water bacteria.

REMARKS

This water cannot be considered as a potable water. The bacterial count is too high. The presence of such a large number of colon bacilli is very strong evidence of organic contamination, most likely from fecal matter, and also suggests the possibility that typhoid bacilli may have been present though none were found at this examination.

Respectfully submitted.

GEORGE BLUMER

MOUNT VERNON SEWAGE

The Honorable State Board of Health, Albany, N. Y.:

Gentlemen—The undersigned, residents and property holders on and near the Hutchinson river and canal, partly in the city of New York and partly in the city of Mount Vernon and town of Pelham, Westchester county, New York, protest most urgently against the emptying of sewage into said river and canal by the city of Mount Vernon, the villages of Pelham and Pelham Manor, as the current is so sluggish that the sewage never reaches the sound, but remains in said river and canal, and has become a terrible nuisance and a great danger to the health of the inhabitants of the valley in which said river and canal are located, and your petitioners request that your Board take prompt action in having pollution of said river and canal stopped at once.

John Scharff
John Ebling, Sr.
George B. Heitzman
George Ploner
Edward Maloy
Chas. Dempster
Andrew Mortz
Cassimir Ploner
Tije Ploner
Thomas H. Hodge
Wm. F. Johnston
W. V. Thompson
Joseph Merkel
John Welsh
John Ruser
Jacob Sohl
Wm. H. Holley
Samuel G. Brundge

Richard J. McGowan
P. Garvey
David Foley
John Hanson
Thomas Beattie
Paul Kohn
John Burke
Willard Clendenin
Frank Waker
C. Langenstein
Lea Raynor
W. J. Elliott
H. Doyle
E. P. Miller
Charles H. Zorn
Fritz Rumpf
A. S. Wildey
John Corrigan

Joseph E. Nosworthy
Stephen D. Hunt
Stephen P. Hunt
John W. Maloy
J. H. Bryant
R. Willims
J. McMullen

Thomas Manning
William Kenney
Thomas Matthews
Anton Kammerer
James F. Secor, Jr., for estate of Anna M. Secor.

SCHENECTADY, N. Y., *January* 17, 1901

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I have to submit the following report on the examination into the matter of the alleged discharge of sewage into the Hutchinson river by the municipalities of Mount Vernon, Pelham and Pelham Manor, made in accordance with your instructions of January 4th, transmitting the complaint signed by John Scharff and numerous other residents of Mount Vernon, Pelham and Pelham Manor.

I visited the locality on January 8th and called on James F. Secor Jr. one of the gentlemen who had submitted the complaint referred to, and with him inspected the Hutchinson river and canal from the river to the sound. I found the facts to be as stated, viz., that the sewage from the city of Mount Vernon and the villages of Pelham and Pelham Manor is being discharged directly, and without purification, into the river and the upper end of the U. S. government canal recently opened to the sound. Although at the time of my visit the weather was quite cold and the ground frozen solidly, there was a decidedly perceptible odor from the stream, which was reeking with sewage in all stages of decomposition. The natural flow of Hutchinson river, or East Chester creek as it has been called in the past, has been nearly all appropriated for the water supplies of New Rochelle and Mount Vernon leaving only the slight amount of drainage occurring below the intake of the Mount Vernon water supply and the generally slight overflow from the two water supplies above mentioned as the present flow in the stream. On the day of my visit the flow of the stream was about 30 cubic feet of water per minute, and this was stated to me to be considerably above the summer flow and not far from the ordinary flow.

The present work of the U. S. government canal has been extended to a point just above the principal sewer outlet of the Mount Vernon system, but below the outlets of the Pelham and the Pelham Manor systems.

Although the volume of standing water into which the Mount Vernon sewage discharges is much greater than before the excavation of the canal, the amount of water flowing out to the sound is no greater and, in fact, the linear velocity of movement toward the sound is very much less than when the stream occupied its natural bed, so that less sewage actually reaches the sound and more is deposited in the reach of the canal near the sewer outlet than before the canal improvement was made. The flow and ebb of the tide in the canal from the sound simply causes the sewage-laden water to swing back and forth above and below the sewer outlet, and but little if it gets out to the sound.

From the conditions which I found to exist in the water of the canal both above and below the main sewer outlet of the Mount Vernon sewer system and in the natural stream itself below the sewer outlets from both Pelham and Pelham Manor, I do not see how it could be otherwise than as the complainants in their petition describe it during the summer season. One of the citizens residing near the stream above the end of the canal has brought an action against the city of Mount Vernon asking an injunction against the continuation of the discharge of sewage into the stream on the ground that it has been the cause of sickness in his family. I endeavored to see the health officer of Pelham Manor to ascertain the condition of the health of citizens along the stream, from an official source, but found him away from home for the day, and have written him for this information, but have received no reply.

An examination of the reports of the State Board of Health shows that plans for a sewer system for the city, then village, of Mount Vernon were approved by the State Board on December 16, 1887, and that plans for a system of chemical precipitation disposal works were approved by the State Board of Health on November 17, 1893. Subsequently a number of changes in the sewer lines, particularly in the location of the outlet sewers, have been approved by the State Board without reference to the plans for sewage disposal.

Plans for a system of sewers and chemical precipitation disposal works for the village of Pelham Manor were approved by the State Board of Health on June 29, 1894, and plans for a change in the location of the disposal works were approved by the State Board on September 17, 1896, and on November 12, 1896. Neither of these disposal works for Mount Vernon nor Pelham Manor have been constructed, nor any steps taken toward their construction, and the present complaint is but one of a series of similar ones that have been before the State Board on previous occasions.

In view of this fact and the fact that plans for the disposal of the sewage from both these municipalities have been approved for several years, and no steps have yet been taken to build the works, it would appear clearly within the province of the State Board to direct the two municipalities to carry out the execution of the plans for the disposal system or, as an alternative, to procure and execute without further delay an efficient system or means of disposal by some other plan. This alternative is suggested in view of the fact that the plans for chemical disposal works would now be considered antiquated, and no engineer of standing would now recommend chemical treatment in this situation, and in view of the further fact that effects have been made during the past year or two to procure the construction of a trunk sewer through the valley of the Hutchinson river to and through the Borough of the Bronx, at the partial expense of the city of New York.

I am, dear sir, very truly yours

OLIN H. LANDRETH

Consulting engineer

RULES AND REGULATIONS

FOR THE

SANITARY PROTECTION OF WATER SUPPLIES

TARRYTOWN

TARRYTOWN, N. Y., *April* 19, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany. N. Y.:*

Dear Sir—I am directed by the board of water commissioners to request the State Board of Health to send one of their sanitary experts to make a personal examination of all parts of the watershed from which our supply is obtained, and to formulate such rules and regulations as may be required for the adequate protection of the supply.

Yours very respectfully
D. S. MERRITT
Engineer and superintendent

ALBANY, *April* 19, 1900

D. S. MERRITT, *Engineer and Superintendent Board of Water commissioners, Tarrytown, N. Y.:*

Dear Sir—I am in receipt of your communication of the 19th inst. stating that you have been directed by the board of water commissioners of Tarrytown to request an examination by the representative of this Board of the watershed of the water supply of the village of Tarrytown that he may formulate adequate rules for the sanitary protection of the public water supply.

In reply you are informed that Prof. Olin H. Landreth has been directed to make the desired examination, also to formulate such rules and regulations as he may deem necessary for the protection of the water supply.

In accordance with a verbal understanding had with you, Professor Landreth's bill for services and expenses is to be paid by the municipality of Tarrytown.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *April* 20, 1900

Prof. OLIN H. LANDRETH, *Consulting engineer, State Board of Health, Schenectady, N. Y.:*

Dear Sir—I am in receipt of a communication from D. T. Merritt, engineer and superintendent of Tarrytown water-works, of which the following is a copy:

"I am directed by the board of water commissioners to request the State Board of Health to send one of their sanitary experts to make a personal examination of all parts of the watershed from which our supply is obtained, and to formulate such rules and regulations as may be required for the adequate protection of the supply."

You are therefore requested to proceed to Tarrytown for the above service, your bill for services and expenses to be paid by the municipality of Tarrytown in accordance with a verbal understanding had with Mr. Merritt.

Please notify Mr. Merritt when you can visit Tarrytown.

Very respectfully
BAXTER T. SMELZER
Secretary

SCHENECTADY, N. Y., *April* 24 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I beg to acknowledge the receipt of your communication of April 20th directing me to examine the watershed of the Tarrytown water supply and formulate rules and regulations for the protection of the purity of the supply. In answer thereto I beg to say that I will communicate with Mr. Merritt, the engineer and superintendent of the Tarrytown water-works, for the purpose of arranging a date on which to make the examination and will formulate the rules promptly thereafter.

It seems to me proper that rules now formulated should provide for the distinction of the two classes of violations provided for in the amendment to the Public health law of 1899. I am, dear sir,

Very truly yours
OLIN H. LANDRETH
Consulting engineer

SCHENECTADY, N. Y., *December* 6, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—On April 20, 1900, I was directed by you to make an examination of the watershed of Tarrytown water supply and to formulate rules and regulations for the protection of the same against contamination, for enactment by the State Board of Health. I made the examination of the watershed and prepared a set of rules for the sanitary protection of the same, thoroughly revised and adapting the old form of rules to this particular watershed, and sent the same to the board of water commissioners of Tarrytown for their approval, previous to their enactment by the State Board of Health.

I have just received a letter from D. S. Merritt, superintendent of the board of water commissioners, as follows:

" BOARD OF WATER COMMISSIONERS

" TARRYTOWN, N. Y., *December* 5, 1900

" OLIN H. LANDRETH, C. E., *Schenectady, N. Y.:*

" My Dear Professor—Enclosed I return the copy of rules and regulations for the protection of our water supply. The board have carefully gone over the matter and believe them to be fully adequate and comprehensive. We cannot suggest any change. I suppose that after they have been passed upon by the State Board of Health you will give me the proper instructions as to the advertising, or publishing rather, and the necessary legal steps to be taken.

" Yours very truly
" D. S. MERRITT "

I suppose that the above will be a sufficiently formal presentation of the rules from the board of water commissioners to your Board, and I therefore enclose the rules to you for enactment.

The item of $200 in the "penalty" clause was apparently inserted by the board of water commissioners, and I suppose that it represents their preference as to the amount of the penalty.

I am, dear sir, very truly yours

OLIN H. LANDRETH

Consulting engineer

Rules and regulations for the protection from contamination of the public water supply of the village of Tarrytown, N. Y., enacted by the New York State Board of Health under chapter 661 of the laws of 1893 and chapter 251 of the laws of 1899

[Abstract from the Public health law providing for the protection from contamination of public water supplies. Chapter 661 of the laws of 1893 as amended by chapter 251 laws of 1899.]

Section 70. The State Board of Health may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and their sources within the state. If any such rule or regulation relates to a temporary source or act of contamination, any person violating such rule or regulation shall be liable to prosecution for misdemeanor for every such violation, and on conviction shall be punished by a fine not exceeding two hundred dollars, or imprisonment not exceeding one year, or both. If any such rule or regulation relates to a permanent source or act of contamination, said board may impose penalties for the violation thereof or the non-compliance therewith, not exceeding two hundred dollars for every such violation or non-compliance. Every such rule or regulation shall be published at least once in each week, for six consecutive weeks, in at least one newspaper of the county where the waters to which it relates are located. The cost of such publication shall be paid by the corporation or municipality benefited by the protection of the water supply to which the rule or regulation published relates. The affidavit of the printer, publisher or proprietor of the newspaper in which such rule or regulation is published may be filed, with the rule or regulation published, in the county clerk's office of such county, and such affidavit and rule and regulation shall be conclusive evidence of such publication, and of all the facts therein stated, in all courts and places

§ 71. The officer or board having by law the management and control of the potable water supply of any municipality, or the corporation furnishing such supply, may make such inspection of the sources of such water supply as such officer, board or corporation deems it advisable, and to ascertain whether the rules or regulations of the State Board are complied with. If any such inspection discloses a violation of any such rule or regulation relating to a permanent source or act of contamination, such officer, board or corporation shall cause a copy of the rule or regulation violated to be served upon the person violating the same, with a notice of such violation. If the person served does not immediately comply with the rule or regulation violated, such officer, board or corporation shall notify the State Board of the violation, which shall immediately examine into such violation; and if such person is found by the State Board to have actually violated such rule or regulation, the secretary of the State Board shall order the local board of health of such municipality to convene and enforce obedience to such rule or regulation. If the local board fails to enforce such order within ten days after its receipt, the corporation furnishing such water supply or the municipality deriving its water supply from the waters to which such rule or regulation relates, may maintain an action in a court of record, which shall be tried in the county where the cause of action arose against such person, for the recovery of the penalties incurred by such violation, and for an injunction restraining him from the continued violation of such rule or regulation.

§ 72. Sewerage.—When the State Board of Health shall, for the protection of a water supply from contamination, make orders or regulations the execution of which will make necessary or require the construction and maintenance of any system of sewerage, or a change thereof, in or for any village or hamlet, whether incorporated or unincorporated, or the execution of which will require the providing of some public means of removal or purification of sewage, the municipality or corporation owning the water works benefited thereby shall, at its own expense, construct and maintain such system of sewerage or change thereof, and provide such means of removal and purification of sewage and such works or means of sewage disposal as shall be approved by the State Board of Health. When the execution of any such regulations of the State Board of Health will occasion or require the removal of any building or buildings, the municipality or corporation owning the water-works benefited thereby shall, at its own expense, remove such buildings and pay to the owner thereof all damages occasioned by such removal. When the execution of any such regulation will injuriously affect any manufacturing or industrial enterprise which is not a public nuisance, such municipality or corporation shall pay all damages occasioned by the enforcement thereof. Until such construction of change of such system or systems of sewerage, and the providing of such means of removal or purification of sewage and such works or means of sewage disposal, and the removal of any building, are so made by the municipality or corporation owning the water-works to be benefited thereby at its own expense, there shall be no action or proceeding taken by such municipality or corporation against any person or corporation for the violation of any regulation of the State Board of Health under this article, and no person or corporation shall be considered to have violated or refused to obey any such rule or regulation. The owner of any building the removal of which is occasioned or required, or which has been removed by any rule or regulation of the State Board of Health made under the provisions of this article, and all persons whose rights of property are injuriously affected by the enforcement of any such rule or regulation, shall have a cause of action against the municipality or corporation owning the water-works benefited by the enforcement of such rule or regulation, for all damages occasioned or sustained by such removal or enforcement, and an action therefor may be brought against such municipality or corporation in any court of record in the county in which the premises or property affected is situated and shall be tried therein; or such damages may be determined by a special proceeding in the supreme court or the county court of the county in which the property is situated. Such special proceedings shall be commenced by petition and notice to be served by such owner upon the municipality or corporation in the same manner as for the commencement of condemnation proceedings. Such municipality or corporation may make and serve an answer to such petition as in condemnation proceedings. The petition and answer shall set forth the claims of the respective parties, and the provisions of the condemnation law shall be applicable to the subsequent proceedings upon the petition and answer, if any. Either party may, before service of the petition or answer respectively, offer to take or pay a certain sum, and no costs shall be awarded against either party unless the judgment is more unfavorable to him that his offer.

RULES AND REGULATIONS

The following rules and regulations shall apply to the reservoirs belonging to the public water supply of the village of Tarrytown, Westchester county, N. Y., and to all watercourses entering or ultimately discharging into the same. The term "reservoir" wherever used in these rules is intended to mean and comprise any natural or artificial reservoir, lake or pond which stores or detains water that enters or may enter the public water supply of the village of Tarrytown. The term "watercourse" wherever used in these rules is intended to mean and comprise any spring, stream, ditch, gutter or other watercourse of any kind, the waters of which when running, whether constantly or occasionally, eventually flow, or may flow, into the public water supply of the village of Tarrytown.

PRIVIES ADJACENT TO RESERVOIRS OR WATERCOURSES

(1) No privy, privy vault, pit, cesspool, or any other receptacle of any kind used for either temporary storage or the permanent deposit of human excreta shall be constructed, placed or main-

tained with its nearest point within fifty (50) feet, horizontal measurement, of the high-water mark of any reservoir, or of the edge, margin or precipitous bank of any watercourse of the Tarrytown water supply.

(2) No privy, privy vault, pit, cesspool or any other receptacle used for the permanent deposit of human excreta shall be constructed, located, placed or maintained with its nearest point within two hundred fifty (250) feet, horizontal measurement, of the water line of any reservoir of the Tarrytown water supply, or within one hundred fifty (150) feet, horizontal measurement, of the edge, margin or precipitous bank of any watercourse of the Tarrytown water supply.

(3) Every privy, privy vault, pit, cesspool or other receptacle or place used for the temporary storage of human excreta which is conctructed, located or maintained within the aforesaid two hundred fifty (250) feet, horizontal measurement, of the high-water mark of any reservoir, or within the aforesaid one hundred fifty (150) feet, horizontal measurement, of the edge, margin or precipitous bank of any watercourse of the Tarrytown water supply, from which privy or other receptacle the excreta are not at once removed automatically by means of suitable water-tight pipes or conduits to some proper place of ultimate disposal, as hereinafter provided, shall be arranged in such manner that all such excreta shall be received temporarily in suitable vessels or receptacles which shall at all times be maintained in an absolutely water-tight condition and which will permit of convenient removal to some place of ultimate disposal as hereinafter set forth.

(4) The excreta collected in the aforesaid receptacles shall be removed and the receptacles thoroughly cleansed and deodorized as often as may be found necessary in order to maintain the privy in proper sanitary condition and to effectually prevent any overflow upon the soil or upon the foundations or floor of the privy. In effecting this removal the utmost care shall be exercised that none of the contents be allowed to escape while being transferred from the privy to the place of disposal hereinafter specified, and

that the contents, while being transferred from the privy to the place of disposal, shall be thoroughly covered and that the least possible annoyance and inconvenience be caused to occupants of the premises and the adjacent premises.

(5) Unless otherwise specifically ordered or permitted by the State Board of Health the excreta collected in the aforesaid receptacles shall, when removed, be disposed of by burying in trenches, or by thoroughly digging it into the soil in such place and manner as to effectually prevent them being washed over the surafce of the ground by rain or melting snow, and at distances not less than three hundred (300) feet, horizontal measurement, from the high-water mark of any reservoir or not less than two hundred (200) feet from the edge, margin, or precipitous bank of any watercourse of the Tarrytown water supply.

(6) Whenever it shall be found that owing to the character of the soil or of the surface of the ground, or owing to the height or flow of subsoil, or surface water, or other special local conditions, the excremental matter, from any privy or aforesaid receptacle, or from any trench or place of disposal may, in the opinion of the State Board of Health, be washed over the surface or through the soil into any reservoir or watercourse, then the said privy or receptacle for excreta, or the said trench or place of disposal shall, after due notice to the owner thereof, be removed to such greater distance or to such place as shall be considered safe and proper by the State Board of Health.

SEWAGE, HOUSE SLOPS, SINK WASTE, ETC.

(7) No sewage nor excremental matter from any water-closet, privy, or cesspool shall be led, conducted, or discharged by any pipe, drain or ditch into any reservoir or watercourse of the Tarrytown water supply, nor shall any such matter be placed, led, discharged or allowed to escape onto the surface of the ground or into the ground below the surface within three hundred (300) feet, horizontal measurement, from the high-water mark of any reservoir, or within two hundred (200) feet, horizontal measurement, of the edge, margin or precipitous bank of any watercourse of the Tarrytown water supply.

(8) No garbage, putrescible matter, house slops, bath water, kitchen or sink waste, refuse or waste water from creameries, cheese factories, laundries, nor water in which milk cans, utensils, clothes, bedding, carpets or harnesses have been washed or rinsed, nor any polluted water or liquid of any kind shall be thrown or discharged directly or indirectly into any reservoir or watercourse of the Tarrytown water supply. Nor shall any such liquid or solid refuse or waste be thrown or discharged upon the surface of the ground or into the ground below the surface in any manner whereby the same may flow into any reservoir or watercourse of the Tarrytown water supply within one hundred (100) feet, horizontal measurement, of the high-water mark of any reservoir, or within seventy-five (75) feet, horizontal measurement, of the edge, margin, or precipitous bank of any watercourse of the Tarrytown water supply.

(9) No clothing, bedding, carpets, harness, vehicle, receptacles, utensils, nor anything that pollutes water shall be washed, rinsed or placed in any reservoir or watercourse of the Tarrytown water supply.

BATHING, ANIMALS, MANURE, COMPOST, ETC.

(10) No person shall be allowed to bathe in any reservoir or watercourse of the Tarrytown water supply, nor shall any animals or poultry be allowed to stand, wade or swim in said reservoir or watercourse, nor to be washed therein.

(11) No stable for cattle or horses, barnyard, hog-yard, pig-pen, poultry house in yard, hitching place or standing place for horses or other animals, manure pile nor compost heap shall be located, placed, maintained or allowed to remain with its nearest point less than one hundred fifty (150) feet, horizontal measurement, from high-water mark of any reservoir, or less than seventy-five (75) feet, horizontal measurement, from the edge, margin or precipitous bank of any watercourse of the Tarrytown water supply, and none of the above-named objects or sources of pollution shall be so located, placed, maintained, or allowed to remain that the drainage, leachings, or washings from the same may enter any reservoir or watercourse of the Tarrytown water supply, without

first having passed over or through such an extent of soil as to have been properly purified, and in no case shall it be deemed that proper purification has been secured unless the above drainage, leachings or washings shall have percolated over or through the soil in a scattered, dissipated form, and not concentrated in perceptible lines of drainage, for a distance of not less than one hundred and fifty (150) feet before entering any reservoir nor less than seventy-five (75) feet before entering any watercourse of the Tarrytown water supply.

(12) No human excrement or compost containing human excrement shall be placed, piled or spread upon the ground, or dug or buried in the soil, within a distance of three hundred (300) feet from the high-water line of any reservoir, nor within a distance of two hundred (200) feet from the edge, margin or precipitous bank of any watercourse of the Tarrytown water supply, and no manure or compost of any kind shall be placed, piled or spread upon the ground within one hundred fifty (150) feet of the high-water line of any reservoir nor within seventy-five (75) feet of the edge, margin or precipitous bank of any watercourse of the Tarrytown water supply.

(13) No decayed or fermented fruit or vegetables, cider mill waste, roots, grain, or other vegetable refuse of any kind shall be located, placed, maintained or allowed to remain in such places that the drainage, leachings or washings therefrom may flow by open, blind or covered drains or channels of any kind into any reservoir or watercourse of the Tarrytown water supply without first having passed over or through such an extent of soil as to have become properly purified, and in no case shall it be deemed that sufficient purification has been secured unless the above-mentioned drainage, leachings or washings shall have percolated over or through the soil in a scattered, dissipated form, and not concentrated in perceptible lines of drainage, for a distance of not less than one hundred (100) feet before entering any reservoir, or a distance not less than fifty (50) feet before entering any watercourse of the Tarrytown water supply.

DEAD ANIMALS, OFFAL, MANUFACTURING WASTE, ETC.

(14) No dead animal, bird, fish, or any part thereof, nor any offal nor refuse from any slaughter-house, nor any decomposable or putrescible refuse or waste matter of any kind shall be thrown, placed in, or allowed to pass into any reservoir or watercourse of the Tarrytown water supply, nor shall any such material or refuse be so located, placed, maintained, or allowed to remain that the drainage, leachings or washings therefrom may reach any reservoir or water course of the Tarrytown water supply without first having percolated over or through the soil in a scattered, dissipated form, and not concentrated in perceptible lines of drainage, for a distance of not less than one hundred and fifty (150) feet before entering any reservoir, and not less than one hundred (100) feet before entering any watercourse of the Tarrytown water supply.

PENALTY

(15) In accordance with section seventy of chapter six hundred sixty-one (661) of the laws of 1893, as amended by chapter two hundred fifty-one (251) of the laws of 1899, the penalty for each and every violation of, or non-compliance with, any of the above rules and regulations which relate to a permanent source or act of contamination is hereby fixed at two hundred dollars ($200).

At a meeting of the New York State Board of Health, held at Fifth Avenue hotel, New York city, on the 21st day of December, 1900, the above rules and regulations for the protection from contamination of the public water supply of the village of Tarrytown, N. Y., were duly made, ordained and established, pursuant to chapter six hundred sixty-one (661) of the laws of the state of New York for 1893, and chapter two hundred fifty-one (251) of the laws of the state of New York for 1899.

DANIEL LEWIS
President

NYACK

NYACK, N. Y., *March* 29, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—I am directed by the board of water commissioners, village of Nyack, N. Y., to request that in pursuance of section 70, chapter 661, laws of 1893, you formulate rules and regulations for the protection from contamination of our water supply.

Respectfully

GAVIN N. HOUSTON

Engineer and superintendent

Rules and regulations for the protection from contamination of the public water supply of the village of Nyack, N. Y., enacted by the State Board of Health under chapter 661 of the laws of 1893 and chapter 251 of the laws of 1899

[Abstract from the Public health law providing for the protection from contamination of public water supplies. Chapter six hundred sixty-one of the laws of 1893, as amended by chapter two hundred fifty-one of the laws of 1899.]

Section 70. The State Board of Health may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and their sources within the state. If any such rule or regulation relates to a temporary source or act of contamination any person violating such rule or regulation shall be liable to prosecution for misdemeanor for every such violation, and on conviction shall be punished by a fine not exceeding two hundred dollars, or imprisonment not exceeding one year, or both. If any such rule or regulation relates to a permanent source or act of contamination, said Board may impose penalties for the violation thereof or the non-compliance therewith, not exceeding two hundred dollars for every such violation or non-compliance. Every such rule or regulation shall be published at least once in each week for six consecutive weeks in at least one newspaper of the county where the waters to which it relates are located. The cost of such publication shall be paid by the corporation or municipality benefited by the protection of the water supply to which the rule or regulation published relates. The affidavit of the printer, publisher or proprietor of the newspaper in which such rule or regulation is published may be filed, with the rule or regulation published, in the county clerk's office of such county, and such affidavit and rule and regulation shall be conclusive evidence of such publication, and of all the facts therein stated, in all courts and places.

§ 71. The officer or board having by law the management and control of the potable water supply of any municipality, or the corporation furnishing such supply, may make such inspection of the sources of such water supply as such officer, board or corporation deems it advisable, and to ascertain whether the rules or regulations of the State Board are complied with. If any such inspection discloses a violation of any such rule or regulation relating to a permanent source or act of contamination, such officer, board or corporation shall cause a copy of the rule or regulation violated to be served upon the person violating the same, with a notice of such violation. If the person served does not immediately comply with the rule or regulation violated, such officer, board or corporation shall notify the State Board of the violation, which shall immediately examine into such violation; and if such person is found by the State Board to have actually violated such rule or regulation, the secretary of the State Board shall order the local board of health of such municipality to convene and enforce obedience to such rule or regulation. If the local board fails to enforce such order within ten days after its receipt, the corporation furnishing such water supply, or the municipality deriving its water supply from the waters to which such rule or regulation relates, may maintain an action in a court of record, which shall be tried in the county where the cause of action arose against such person, for the recovery of the penalties incurred by such violation, and for an injunction restraining him from the continued violation of such rule or regulation.

§ 72. Sewerage—When the State Board of Health shall, for the protection of a water supply from contamination, make orders or regulations the execution of which will require or make necessary the construction and maintenance of any system of sewerage, or a change thereof, in or for any village or hamlet, whether incorporated or unincorporated, or the execution of which will require the providing of some public means of removal or purification of sewage, the municipality or corporation owning the water-works benefited thereby shall, at its own expense, construct and maintain such system of sewerage, or change thereof, and provide such means of removal and purification of sewage and such works or means of sewage disposal as shall be approved by the State Board of Health. When the execution of any such regulations of the State Board of Health will occasion or require the removal of any building or buildings, the municipality or corporation owning the water-works benefited thereby shall, at its own expense, remove such buildings and pay to the owner thereof all damages occasioned by such removal. When the execution of any such regulation will injuriously affect any manufacturing or industrial enterprise which is not a public nuisance, such municipality or corporation shall pay all damages occasioned by the enforcement thereof. Until such construction or change of such system or systems of sewerage, and the providing of such means of removal or purification of sewage, and such works or means of sewage disposal and the removal of any building, are so made by the municipality or corporation owning the water works to be benefited thereby at its own expense, there shall be no action or proceeding taken by such municipality or corporation against any person or corporation for the violation of any regulation of the State Board of Health under this article, and no person or corporation shall be considered to have violated or refused to obey any such rule or regulation. The owner of any building the removal of which is occasioned or required, or which has been removed by any rule or regulation of the State Board of

Health made under the provisions of this article, and all persons whose rights of property are injuriously affected by the enforcement of any such rule or regulation, shall have a cause of action against the municipality or corporation owning the water-works benefited by the enforcement of such rule or regulation for all damages occasioned or sustained by such removal or enforcement, and an action therefor may be brought against such municipality or corporation in any court of record in the county in which the premises or property affected is situated and shall be tried therein; or such damages may be determined by a special proceeding in the supreme court or the county court of the county in which the property is situated. Such special proceedings shall be commenced by petition and notice to be served by such owner upon the municipality or corporation in the same manner as for the commencement of condemnation proceedings. Such municipality or corporation may make and serve an answer to such petition as in condemnation proceedings. The petition and answer shall set forth the claims of the respective parties, and the provisions of the condemnation law shall be applicable to the subsequent proceedings upon the petition and answer, if any. Either party may, before the service of the petition or answer, respectively, offer to take or pay a certain sum, and no costs shall be awarded against either party unless the judgment is more unfavorable to him than his offer.

RULES AND REGULATIONS ENACTED BY THE STATE BOARD OF HEALTH ON MAY 11, 1900

The following rules and regulations apply to that portion of the stream known as Hackensack creek, a tributary of the Hackensack river, lying above the intake to the filtration works of the Nyack water supply, situated at West Nyack, Rockland county, N. Y., as well as to every spring, stream, ditch, gutter, lake, pond, reservoir or watercourse of any kind the waters of which when running flow eventually into the aforesaid Hackensack creek above the aforesaid limits. They also apply to the reservoir of the Nyack water supply situated within the village of Nyack.

PRIVIES ADJACENT TO PONDS, LAKES, RESERVOIRS OR WATER-COURSES

(1) No privy, privy vault, pit or cesspool or any other recepticle of any kind used for the deposit, reception or storage of human excreta shall be constructed, located, placed or maintained with its nearest point within fifty (50) feet, horizontal measurement, of the high-water mark of any lake, pond or reservoir, or of the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or other water-course of any kind the waters of which comprise or when running flow eventually into the aforesaid Hackensack creek above the aforesaid limits.

(2) Every privy, privy vault, pit or cesspool or other receptacle or place used for the deposit, reception or storage of human excreta which is constructed, located or maintained within one hundred fifty (150) feet, horizontal measurement, of the high water mark of any lake, pond or reservoir or of the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain, or watercourse of any kind whose waters comprise or when running flow into the aforesaid Hackensack creek above the aforesaid limits, and from which privy or other receptacle the excreta are not at once removed automatically by means of suitable water-tight pipes or conduits to some proper place of ultimate disposal as hereinafter provided, shall be arranged in such manner that all such excreta shall be received temporarily in suitable vessels or receptacles which shall at all times be maintained in an absolutely water-tight condition, and which will permit of convenient removal to some place of ultimate disposal as hereinafter set forth.

(3) The excreta collected in the aforesaid removable receptacles shall be removed and the receptacles cleansed and deodorized as often as may be found necessary in order to maintain the privy in proper sanitary condition and to effectually and strictly prevent any overflow upon the soil or upon the foundations or floor of the privy. In effecting this removal the utmost care shall be exercised that none of the contents be allowed to escape while being transferred from the privy to the place of

disposal hereinafter specified, and that the least possible annoyance and inconveniences be caused to occupants of the premises or of adjacent premises.

(4) Unless otherwise specifically ordered or permitted by the State Board of Health the excreta collected in the aforesaid receptacles shall, when removed, be disposed of by burying in trenches or by thoroughly digging into the soil in such place and manner as to effectually prevent them being washed over the surface of the ground by rain or melting snow and at distances not less than two hundred (200) feet, horizontal measurement, from the high-water mark of any lake, pond or reservoir or from the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse of any kind the waters of which comprise or, when running, flow into the aforesaid Hackensack creek above the aforesaid limits.

(5) Whenever it shall be found that owing to the character of the soil or to the surface of the ground or owing to the height or flow of subsoil or surface water or through special local conditions the excremental matter from any privy or aforesaid receptacle or from any trench or place of disposal may, in the opinion of the State Board of Health, be washed over the surface of the ground or through the soil into any lake, pond or reservoir, spring, stream, ditch or gutter, drain or other watercourse the waters of which comprise or when running flow into the aforesaid Hackensack creek above the aforesaid limits, then the said privy or receptacle for excreta or the said trench or place of disposal shall after due notice to the owner thereof be removed to such greater distance or to such place as shall be considered safe and proper by the State Board of Health.

HOUSE SLOPS, SINK WASTE, LAUNDRY WATER, GARBAGE, REFUSE, ETC.

(6) No sewage, garbage, putrescible matter, house slops, bath water, kitchen or sink waste, refuse or waste water from creameries, cheese factories or laundries or water in which milk cans, utensils, clothes, bedding, carpets or harnesses have been washed or rinsed, nor any polluted water or liquid shall be

thrown or discharged directly into any lake, pond, reservoir, spring, stream, ditch, gutter, drain or other watercourse comprising or flowing into the aforesaid Hackensack creek within the aforesaid limits, nor shall any such liquid or solid matter be thrown or discharged upon the surface of the ground or into the ground below the surface in any manner whereby the same may flow into any lake, pond, reservoir, spring, stream, ditch, gutter, drain or watercourse aforesaid within fifty (50) feet, horizontal measurement, of the high-water mark of any lake, pond or reservoir or of the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or other watercourse aforesaid.

(7) No clothing, bedding, carpets, harness, vehicles, tanks, barrels, receptacles, utensils nor animals nor anything that pollutes water shall be washed or rinsed in, nor shall any person bathe in any lake, pond, reservoir, spring, stream, ditch, gutter, drain or other watercourse of any kind aforesaid.

MANURES, COMPOSTS, ETC.

(8) No stable for cattle or horses, barnyard, hog yard, poultry yard, cattle, pen, pigsty, henhouse, hitching place or standing place for horses or other animals and no manure pile, compost heap, piles of fermented or decayed fruit, apple pumice, cider-mill waste, vegetables, roots, grain, leaves or other vegetable substances shall be located, placed or maintained or allowed to remain in such place or manner that the washing or drainage therefrom may flow by open, blind or covered drains or channels of any kind into any lake, pond, reservoir, spring, stream, ditch, gutter, drain or watercourse aforesaid without first having passed over or through such extent of soil as to have become properly purified, and in no case shall the above-named sources or causes of pollution be so located or allowed to remain that their nearest point is less than fifty (50) feet, horizontal measurement, from the high-water mark of any lake, pond, reservoir, or the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse of any kind which comprises or when running flows into the Hackensack creek above the aforesaid limits.

(9) No human excreta or compost containing human excreta shall be spread upon the ground within two hundred (200) feet, horizontal measurement, of the high-water line of any lake, pond or reservoir, or the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse of any kind whose waters comprise or when running flow into the aforesaid Hackensack creek above the aforesaid limits, and no manure or compost of any kind shall be spread or deposited upon the ground so as to be washed a less distance than fifty (50) feet over the surface or through the soil before reaching the nearest point of any such aforesaid lake, pond, reservoir, spring, stream, ditch, gutter, drain or other watercourse aforesaid.

DEAD ANIMALS, OFFAL, MANUFACTURING WASTE, ETC.

(10) No dead animal, bird, fish nor any part thereof nor any offal or putrescible matter nor any polluted waters or refuse from any slaughter-house, dairy, creamery, cheese factory, cider mill or other manufactory shall be thrown or allowed to run into any lake, pond, reservoir, spring, stream, ditch, gutter, drain or watercourse whose waters comprise or when running flow into the aforesaid Hackensack creek above the aforesaid limits, nor shall any such refuse or polluted material aforesaid be so deposited that any portion thereof or of the polluted drainage therefrom shall be washed over or through the soil a less distance than one hundred (100) feet before reaching the nearest point of any such aforesaid lake, pond, reservoir, spring, stream, ditch, gutter, drain or watercourse.

PENALTY.

(11) In accordance with section seventy of chapter six hundred sixty-one of the laws of 1893, as amended by chapter two hundred fifty-one of the laws of 1899, the penalty for each and every violation or non-compliance with any of the above rules and regulations which relate to a permanent source or act of contamination is hereby fixed at two hundred ($200) dollars.

At a meeting of the State Board of Health, held at Albany, N. Y., on the 11th of May, 1900, the above rules and regulations for the protection from contamination of the public water supply of the village of Nyack were made, ordained and established pursuant to chapter six hundred sixty-one of the laws of the state of New York for 1893 and chapter two hundred fifty-one of the laws of the state of New York for 1899.

DANIEL LEWIS,
President
BAXTER T. SMELZER,
Secretary

ALBANY, *May* 25, 1900

Proprietors of Nyack Evening Star, Nyack, N. Y.:

Gentlemen—We send you herewith enclosed copy of rules and regulations for the protection from contamination of the public water supply of the village of Nyack, N. Y., with the request that the same be published in your paper once in each week for six consecutive weeks, and send bill for same to the water commissioners of the village of Nyack, in compliance with the following section of law:

" Section 70. Rules and regulations of State Board—The State Board of Health may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and their sources within the state, and impose penalties for the violation thereof or the non-compliance therewith, not exceeding two hundred dollars for every such violation or non-compliance. Every such rule or regulation shall be published at least once in each week for six consecutive weeks, in at least one newspaper of the county where the waters to which it relates are located. The cost of such publication shall be paid by the corporation or municipality benefited by the protection of the water supply, to which the rule or regulation published relates. The affidavit of the printer, publisher or proprietor of the newspaper in which such rule or regulation is published may be filed, with the rule or regulation published, in the county clerk's office of such county, and such affidavit and rule and regulation shall be conclusive evidence of such publication, and of all the facts therein stated in all courts and places."

After the rules have been published for six consecutive weeks as required by the above section of law, you will please forward a copy of the rules as published, together with your affidavit to this office, in order that the same may be filed in the office of the county clerk of your county.

Please acknowledge receipt of this.

Very respectfully

BAXTER T. SMELZER

Secretary

ALBANY, *July* 11, 1900

HON. CYRUS M. CRUM, *County clerk Rockland county, New City, N. Y.:*

Dear Sir—Enclosed I send you a copy of the rules and regulations for the protection from contamination of the public water supply of the village of Nyack, N. Y., as approved by the State Board of Health May 11, 1900, together with the affidavit of Wm. R. Thompson, managing editor of the Nyack *Evening Star*, to the effect that said rules and regulations had been published in the said newspaper for six weeks successively, and once in each of said weeks, the said publication commencing on the 29th day of May, 1900, and terminating on the 10th day of July, 1900, according to law.

The rules and regulations and affidavit are now sent to you for filing in your office in accordance with the provisions of section 70, article 5, of chapter 661, laws of 1893, as amended by chapter 251, laws of 1899.

Please acknowledge receipt.

Very respectfully

T. A. STUART

Assistant secretary

AVON, LIVONIA AND GENESEO

UTICA, N. Y., *June* 13, 1900

HON. BAXTER T. SMELZER, *Secretary State Board of Health:*

Sir—May 7th last you submitted to me a tentative draft of a set of rules and regulations for the sanitary protection of the public water supply of the villages of Avon, Livonia and Geneseo, N. Y. By a resolution of the State Board of Health, April 27, 1900, you directed me as a consulting engineer of the Board " to look over the ground and confer with the local authorities, if necessary amending the rules submitted or formulating an entirely new set of rules."

May 25th I proceeded to Geneseo, and in company with Lockwood R. Doty, secretary of the joint boards of health of Geneseo, Avon and Livonia; Dr. R. W. Green, health officer of the village and town of Geneseo; E. W. Horton, member of the Geneseo board of health; Dr. C. H. Richmond, health officer of Livonia, and Dr. Preston, health officer of Avon, drove over and inspected a portion of the watershed from which the water supply of the villages of Avon, Geneseo and Livonia is taken.

Conesus lake is the natural reservoir from which the public water supply of these villages is taken. Pumps are employed to raise the water from the lake into distributing reservoirs for each village; thence the water flows into the distributing systems of pipes.

Conesus lake is about 10 miles long by a mile or more wide. It has a good depth, 60 or 70 feet in places, and it has but little shallow water and almost no marshes. The slopes of its watershed are not steep. Its entire area is good farming land and under cultivation. The soil in the vicinity of the lake is varied, clay loam prevailing, and occasionally gravel and sand. The lake provides fishing and boating attractions so inviting and its natural beauty is so apparent that its shores are lined with summer cottages, there being 175 of these besides a half-dozen hotels. These are occupied in the summer season only, but there are a number of farm buildings whose occupants live there the entire year.

There are many cottages with privies located within a few feet of the water's edge with direct drainage into the lake, several barnyards with their outbuildings draining directly into it, and some hotels with drains for their closets and kitchen water leading directly to the lake, and some hotels with their privies located directly over the water surface of the lake.

The public highway encircles the lake, and its location is generally so near the shore that the cottages have only limited room between the lake shore and the highway.

Conesus lake should afford a pure supply of water. Its tributary streams are insignificant and even after storms their roiling effect is unnoticeable. It is said that there are many springs in the lake bottom which are perennial, and it appears a fact that not more than two feet defines the limits between high and low water, hence there are no opportunities for drowning the shore vegetation and no areas of the shore directly exposed to the sun at low water.

Since Hemlock lake, near by, is no longer tenable for summer resorts, its shores being controlled by the city of Rochester, the health officers of Geneseo, Avon and Livonia fear that Conesus lake will become more and more popular as a summer resort, and ask for rules and regulations to prevent the consequent increased pollution of its waters as well as the removal of such causes of pollution as now exist.

I have studied the situation and agree with these officers, that the State Board should exercise its powers in this case, and submit for your consideration, the following rules. The petition being a joint one by the boards of health of Avon, Livonia and Geneseo, and the water supply common to all of them, I have so worded the heading and the rules as to be applicable to all three municipalities, and the cost of their publication and enforcement may be borne jointly. Possibly your law committee may construe the law to require separate rules and their separate publication for each of the villages in interest. If so, a slight change in the wording can be made.

Very respectfully yours

C. W. ADAMS

Consulting engineer

Rules and regulations for the sanitary protection of the public potable water supply of the villages of Avon, Livonia and Geneseo, N. Y., enacted by the State Board of Health under chapter 661 of the laws of 1893 and chapter 251 of the laws of 1899, to wit:

(1) No privy vault, pit or cesspool, or other non-transportable receptacle of any kind, used for the deposit, reception or storage of human excreta shall be constructed, located, placed or maintained within fifty (50) feet, horizontal measurement, of the high-water mark of Conesus lake, or within fifty (50) feet, horizontal measurement, of the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse of any kind, the water of which, when running, flows eventually into Conesus lake, the public water supply for said villages of Avon, Livonia and Geneseo, N. Y.

(2) Every privy or place for the deposit, reception or storage of human excreta which is constructed, located or maintained within three hundred (300) feet, horizontal measurement, of the high-water mark of Conesus lake, or of any pond or reservoir, or within one hundred and thirty (130) feet, horizontal measurement, of the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse aforesaid, and from which privy the excreta are not at once removed automatically, by means of suitable water-tight pipes or conduits to some proper place of ultimate disposal as hereinafter provided, shall be arranged in such manner that all said excreta shall be received and temporarily retained in suitable vessels or receptacles which shall be at all times maintained in an absolutely water-tight condition, and which shall permit of convenient removal to some place of ultimate disposal as hereinafter set forth.

(3) The excreta collected in the aforesaid removal receptacles shall be removed, and the receptacles cleansed and deodorized as often as may be found necessary to maintain the privy in proper sanitary condition, and to effectually and strictly prevent any overflow upon the soil or upon the foundation or floor of the privy. In affecting this removal the utmost care shall be exercised that none of the contents be allowed to escape while being transferred

from the privy to the place of disposal hereinafter specified, and that the least possible annoyance or inconvenience be caused to occupants of the premises or of the adjoining premises.

(4) Unless otherwise specifically ordered or permitted by the State Board of Health, the excreta collected in the aforesaid receptacles shall, when removed, be disposed of by burying in trenches or by thoroughly digging into the soil at such places and in such manner as to effectually prevent them being washed over the surface of the ground by rain or melting snow, and at distances not less than five hundred (500) feet, horizontal measurement, from the high-water mark of Conesus lake or of any pond or reservoir, and not less than three hundred (300) feet, horizontal measurement, from the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse of any kind, the water of which, when running, flows into said Conesus lake.

(5) Whenever it shall be found that, owing to the character of the soil or of the surface of the ground, or to the heighth or flow of the subsoil or surface water, or other special local condition, the excremental matter from any privy or aforesaid receptacle, or from any trench or place of disposal, may, in the opinion of the State Board of Health, be washed over the surface of the ground, or through the soil into Conesus lake or into any pond, reservoir, stream, spring, ditch, gutter, drain or other watercourse tributary to the aforesaid public water supply, then the said privy or receptacle for excreta or trench or place of disposal, shall, after due notice to the owner thereof, be removed to such greater distance, or to such places as shall be considered safe and proper by the State Board of Health.

(6) No sewage, garbage, putrescible matter, house slops, sink waste, water in which milk cans, clothes or bedding have been washed or rinsed, nor any polluted water or liquid shall be thrown or discharged into said Conesus lake, or into any pond, reservoir, spring, stream, ditch, gutter, drain or watercourse aforesaid, nor shall any such liquid or solid matter be thrown or discharged upon the surface of the ground or into the ground below the surface in any manner whereby the same may flow into Conesus lake or into any reservoir, pond, spring, stream, ditch, gutter, drain or watercourse aforesaid, within fifty (50) feet, horizontal measurement, of the high-water mark, edge, margin, or precipitous bank of said Conesus lake, or any pond, reservoir, spring, stream, ditch, gutter, drain or watercourse aforesaid, unless the effluent water shall have been purified as hereinafter provided.

(7) No stable, cattle pen, pigsty, hen-house, barnyard, hog-yard, poultry yard, hitching place or standing place for horses or other animals, and no manure pile, compost heap, piles of ferecmented

or decayed fruit, vegetables, roots, grain, sawdust, leaves or other vegetable substances shall be located, placed, maintained or allowed to remain in such place or manner that the washings or drainage therefrom may flow by open, blind or covered drains or channels of any kind into Conesus lake or into any pond, reservoir, spring, stream, ditch, gutter or watercourse aforesaid, without first having passed over or through such amount of soil as to have become properly purified, and in no case shall the distance from such stable, cattle pen, pigsty, hen-house, barnyard, poultry yard, hitching place or standing place for horses or other animals, manure pile, compost heap, pile of fermented or decayed fruit, vegetables, roots, grain, sawdust, leaves or other vegetable substances, to the high-water mark of said Conesus lake, be less than fifty (50) feet, horizontal measurement, nor the distance from such stable, pen, yard, pile, heap, place or substance to the edge, margin or precipitous bank of such spring, stream, ditch, gutter or watercourse be less than (50) feet, horizontal measurement.

(8) No human excreta or compost containing human excreta shall be spread upon the ground within two hundred and fifty (250) feet, horizontal measurement, of the high-water line of said Conesus lake, nor within one hundred and thirty (130) feet, horizontal measurement, of the edge, margin or precipitous bank of any spring, stream, ditch, gutter, drain or watercourse aforesaid, and no manures or composts of any kind shall be spread or deposited so as to be washed a less distance than fifty (50) feet over the surface or through the soil before reaching the nearest point of any such aforesaid watercourse, drain, gutter, ditch, stream or spring.

(9) No dead animal, bird, nor fish, nor part thereof, nor any putrescible matter, or polluted water from any slaughter-house, dairy, creamery, cheese factory, cider mill or other manufactory shall be thrown or allowed to run into Conesus lake or into any pond, reservoir, spring, stream, ditch, gutter, drain or watercourse aforesaid, nor shall they be so deposited that any portion thereof or of the polluted drainage therefrom shall be washed over the surface or through the soil a less distance than one hundred (100) feet before reaching the nearest point of any such aforesaid watercourse, drain, gutter, ditch, stream or spring.

(10) The polluted water and other liquids defined in the sixth and ninth rules herein may be carried from their source into a properly designed and constructed cesspool, or septic tank, approved by the health boards of the villages of Geneseo, Avon

and Livonia, or their joint representative. Such structure shall be water-tight, thoroughly covered, so as to exclude the light and free currents of air. Its design shall provide for the inflowing and effluent water such means as shall prevent the other than normal stirring of the contents undergoing purification. Such a structure may be located where convenient for the owner of the property.

(11) All boats sailing upon the Conesus lake of such a size and capacity and intended to be employed as public carriers or passenger boats, and also private boats of similar size, shall be provided with water-tight receptacles in lieu of the ordinary water-closet and urinal. The contents of such receptacles shall be disposed of as provided in rules three and four herein for similar cases on shore of the lake.

(12) Penalty—In accordance with section 70 of chapter 661 of the laws of 1893, as amended by chapter 251 of the laws of 1899, the penalty for each and every violation or non-compliance with any of the above rules and regulations is hereby fixed and imposed at two hundred ($200) dollars, to be recovered, as provided by law, from every corporation, person or persons guilty of any such violation or non-compliance.

At a meeting of the State Board of Health, held on the 10th day of July, 1900, at the Hotel Imperial, New York city, the foregoing rules and regulations were made, ordained and established, pursuant to chapter 661 of the laws of 1893, as amended by chapter 251 of the laws of 1899, for the sanitary protection of the reservoirs and tributaries thereto of the water supply of the villages of Avon, Livonia and Geneseo, N. Y.

DANIEL LEWIS

President

BAXTER T. SMELZER

Secretary

ALBANY, *August* 14, 1900

E. W. HORTON & CO., *Proprietors Livingston Democrat, Geneseo, N. Y.:*

Gentlemen—We send you herewith enclosed copy of rules and regulations for the sanitary protection of the public potable water supply of the villages of Avon, Livonia and Geneseo, N. Y., with the request that the same be published in your paper once in each week for six consecutive weeks; and send bill for same to the joint committee of the villages of Avon, Livonia and Geneseo, in compliance with the following section of law:

"Section 70. Rules and regulations of State Board—The State Board of Health may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and their sources within the state. If any such rule or regulation relates to a temporary source or act of contamination, any person violating such rule or regulation shall be liable to prosecution for misdemeanor for every such violation, and on conviction shall be punished by a fine not exceeding two hundred dollars, or imprisonment not exceeding one year, or both. If any such rule or regulation relates to a permanent source or act of contamination, said Board may impose penalties for the violation thereof or the non-compliance therewith, not exceeding two hundred dollars for every such violation or non-compliance. Every such rule or regulation shall be published at least once in each week for six consecutive weeks, in at least one newspaper of the county where the waters to which it relates are located. The cost of such publication shall be paid by the corporation or municipality benefited by the protection of the water supply to which the rule or regulation published relates. The affidavit of the printer, publisher or proprietor of the newspaper in which such rule or regulation is published may be filed, with the rule or regulation published, in the county clerk's office of such county, and such affidavit and rule and regulation shall be conclusive evidence of such publication and of all the facts therein stated in all courts and places."

After the rules have been published for six consecutive weeks as required by the above section of law, you will please forward a copy of the rules as published, together with your affidavit, to this office in order that the same may be filed in the office of the county clerk of your county.

Please acknowledge receipt of this.

Very respectfully

BAXTER T. SMELZER

Secretary

ALBANY, *November* 20, 1900

HON. HENRY B. CURTIS, *County clerk of Livingston county, Geneseo, N. Y.:*

Dear Sir—Enclosed I send you a copy of the rules and regulations for the sanitary protection of the public potable water supply of the villages of Avon, Livonia, and Geneseo. N. Y., as approved by the State Board of Health July 10, 1900, together with the affidavit of E. W. Horton, editor of the Livingston *Democrat*, to the effect that said rules and regulations had been published in said newspaper six consecutive weeks, commencing August 22, 1900, and ending September 26, 1900, according to law.

The rules and regulations and affidavit are now sent to you for filing in your office in accordance with the provisions of section 70, article 5, of chapter 661, laws of 1893, as amended by chapter 251, laws of 1899.

Please acknowledge receipt.

Very respectfully

BAXTER T. SMELZER

Secretary

PLATTSBURG

At a meeting of the board of water commissioners of the village of Plattsburg, Clinton county, N. Y., held at the office of said board in the village of Plattsburg, N. Y., March 12, 1900.

Present—Messrs. Edwards, Stower and Cole, commissioners; Mr. Williams, secretary and commissioners' superintendent.

Mr. Edwards read the proposed rules and regulations for the sanitary protection of the water supply of the village of Plattsburg, N. Y., and after such reading offered the following:

Resolved, That the rules and regulations as read be approved by this board and the State Board of Health is hereby requested to make, ordain and establish the same, pursuant to chapter 661, laws of 1893, for the protection of said water supply.

Adopted.

W. E. M. EDWARDS
JAMES N. STOWER
GEO. M. COLE
Water commissioners

Attest:

A. WILLIAMS,
Secretary board of water commissioners

Rules and regulations for the protection from contamination of the public supply of potable waters and their sources for the village of Plattsburg, Clinton county, N. Y.

(1) No privy or place for the deposit or storage of human excreta shall be constructed, located or maintained within seventy-five (75) feet, horizontal measurement, from the high-water mark or precipitous bank of any reservoir, spring, stream, ditch or water-course of any kind the water in which when running flows eventually into a reservoir of the public water supply of the village of Plattsburg, N. Y.

(2) No privy, vault, pit or cesspool, or non-transportable receptacle of any kind for the reception or storage of human excreta shall be constructed, located or maintained within two hundred and fifty (250) feet, horizontal measurement, from the high-water mark or precipitous bank of any reservoir, or within one hundred and thirty (130) feet, horizontal measurement, from the high-water mark or precipitous bank of any spring, stream, ditch or water-course, as aforesaid.

(3) Every privy or place for the deposit of human excreta which is constructed, located or maintained between the aforesaid limits of seventy-five (75) and two hundred and fifty (250) feet, horizontal measurement, from the high-water mark or precipitous bank of any reservoir, or seventy-five (75) and one hundred and thirty (130) feet, horizontal measurement, from the high-water mark or precipitous bank of any spring, stream, ditch or water-course as aforesaid, and from which the said excreta is not at once

removed automatically, by means of suitable water-tight pipes or conduits to some proper place of disposal beyond the maximum aforesaid limit, shall be arranged in such manner that all said excreta shall be received and temporarily retained in suitable vessels or receptacles, which shall at all times be maintained in an absolute water-tight condition and which shall admit of convenient removal to some place of ultimate disposal beyond the said maximum limit.

(4) The excreta collected in the aforesaid removable receptacles shall be removed and the receptacles cleansed and deodorized as often as is necessary to keep the receptacles in proper sanitary condition and to prevent an overflow of the excreta upon the soil or floor of said privy.

(5) The excreta so collected shall be removed so as to cause the least possible nuisance, and shall be so disposed of that they can not be washed either over the surface or through the subsoil into any reservoir, spring, stream, ditch or water-course of any kind as aforesaid, and shall be so placed as not to cause an offensive nuisance.

(6) Whenever it shall be found that owing to the porous character of the soil the height and flow of surface and subsoil waters, the steepness of the slope or other special conditions of the locality, the excremental matter from any privy, cesspool or other receptacle for human excreta may be washed over the surface or through the subsoil into a reservoir or any spring, stream, ditch or water-course aforesaid without having been thereby, in the judgment of the State Board of Health, sufficiently purified, then the said privy, cesspool or other receptacle for human excreta shall, after due notice to the owner thereof, be removed to such greater distance from said high-water mark as shall be considered safe and proper by the State Board of Health.

HOUSE SLOPS, SINK WASTE, LAUNDRY WATER AND OTHER SIMILAR SEWAGE

(7) No sewage, house slops, sink wastes, water in which milk cans, clothes or bedding have been washed or rinsed, nor *any other* polluted water or liquid shall be thrown or discharged

directly into a reservoir or into any spring, stream, ditch or water-course aforesaid, nor shall any such aforesaid liquid or solid matter or other polluted liquid be thrown or discharged upon the surface or into the ground below the surface in any manner whereby the same may flow into any reservoir, spring, stream, ditch or water-course aforesaid within seventy-five (75) feet, horizontal measurement, of the high-water mark or precipitous bank of any reservoir, spring, ditch, stream or water-course aforesaid.

(8) No clothing, animals, vehicles, nor anything which pollutes water shall be washed, nor shall any person bathe in any reservoir, spring, stream, ditch or water-course aforesaid, nor shall any cattle, horses, sheep, swine or other animals be allowed to enter, wallow or stand in any reservoir, spring, stream, ditch or water-course aforesaid.

GARBAGE AND REFUSE

(9) No garbage or putrescible refuse of any kind shall be thrown or discharged directly into any reservoir, spring, stream, ditch or water-course aforesaid, nor shall any such substances be placed upon or below the surface of the ground where they may be washed into any reservoir, spring, stream, ditch or water-course aforesaid within seventy-five (75) feet of the high-water mark or precipitous bank thereof.

MANURES, COMPOSTS AND SIMILAR MATTER

(10) No stable, pigsty, henhouse, stable yard, barnyard, hogyard, duckyard, hitching or standing place for horses or cattle, nor any compost or manure heap or other place where animal manure accumulates shall be located or maintained within one hundred (100) feet of any reservoir, spring, stream, ditch or water-course aforesaid. These and also watering places for horses or cattle or other animals must be so arranged that the polluted drainage therefrom shall not flow into any such reservoir, springs, streams, ditches or water-courses without having undergone proper purification. Such drainings shall not be allowed to flow through open

or covered drains within seventy-five (75) feet of the high-water mark or precipitous bank of any reservoir, spring, stream, ditch or water-course as aforesaid without having undergone proper purification.

(11) No human excreta or compost containing human excreta shall be spread upon the ground within two hundred and fifty (250) feet of the high-water mark or precipitous bank of a reservoir, or within one hundred and thirty (130) feet of the high-water mark or precipitous bank of any stream, spring, ditch or water-course aforesaid, and no manures or composts of any kind shall be deposited so as to be washed a less distance than fifty (50) feet over the surface or through the subsoil into any reservoir, spring, stream, ditch or water-course aforesaid without having undergone proper purification.

DEAD ANIMALS, VEGETABLE REFUSE AND MANUFACTURING WASTES

(12) No dead animal, bird or fish, or part thereof, nor any filthy or impure matter, nor any decayed fruit or vegetable substance, nor any waste products, putrescible matter or polluted waters from any slaughter-house, dairy, creamery, cider-mill, sawmill or other manufactory shall be thrown or allowed to run into any reservoir, spring, stream, ditch or water-course aforesaid, nor shall they be so deposited that any portion thereof or of the polluted drainage therefrom shall be washed on the surface for less than fifty (50) feet through the subsoil into any reservoir, spring, stream, ditch or water-course aforesaid without having undergone proper purification.

(13) No interment of a human body shall be made within one thousand (1000) feet of the high-water mark or precipitous bank of any reservoir, spring, stream, ditch or water-course aforesaid.

PENALTY

(14) In accordance with section 70 of chapter 661 of the laws of 1893, as amended by chapter 251 of the laws of 1899, the penalty for each and every violation or non-compliance with any of the above rules and regulations is hereby fixed and imposed

at two hundred ($200) dollars, to be recovered, as provided by law, from every corporation, person or persons guilty of any such violation or non-compliance.

At a meeting of the State Board of Health, held on the 20th day of September, 1900, at the Hotel Imperial, New York city, the foregoing rules and regulations were made, ordained and established, pursuant to chapter 661 of the laws of 1893, as amended by chapter 251 of the laws of 1899, for the sanitary protection of the reservoirs and tributaries thereto of the water supply of the village of Plattsburg, N. Y.

DANIEL LEWIS
President
BAXTER T. SMELZER
Secretary

ALBANY, *July* 14, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—The proposed rules and regulations for the sanitary protection of the water supply of the village of Plattsburg, N. Y., which were adopted by the water commissioners of the village on March 12, 1900, and which were submitted to the State Board of Health for their action on March 14, 1900, have been examined and found to be in harmony with the rules for the same purpose which have been approved by the State Board of Health elsewhere and are therefore recommended for approval in the present case.

Very truly yours
EDWARD A. BOND
State engineer and surveyor

ALBANY, *October* 9, 1900

Publisher Plattsburg Sentinel, Plattsburg, N. Y.:

Dear Sir—I send you herewith enclosed copy of rules and regulations for the protection from contamination of the public supply of potable waters and their sources for the village of Plattsburg, Clinton county, N. Y., with the request that the same be published in your paper once in each week for six consecutive weeks; and send bill for same to the water commissioners of the village of Plattsburg, in accordance with the following section of law:

"Section 70. Rules and regulations of State Board—The State Board of Health may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and their sources within the state. If any such rule or regulation relates to a temporary source or act of contamination, any person violating such rule or regulation shall be liable to prosection for misdemeanor for every such violation, and on conviction shall be punished by a fine not exceeding $200, or imprisonment not exceeding one year, or both. If any such rule or regulation relates to a permanent source or act of contamination, said board may impose penalties for the violation thereof or the non-compliance therewith, not exceeding $200 for every such violation or non-compliance. Every such rule or regulation shall be published at least once in each week for six consecutive weeks in at least one newspaper of the county where the waters to which it relates are located. The cost of such publication shall be paid by the corporation or municipality benefited by the protection of the water supply to which the rule or regulation published relates. The affidavit of the printer, publisher or proprietor of the newspaper in which such rule or regulation is published may be filed, with the rule or regulation published, in the county clerk's office of such county, and such affidavit and rule and regulation shall be conclusive evidence of such publication, and of all the facts therein stated in all courts and places."

After the rules have been published for six consecutive weeks as required by the above section of law, you will please forward a copy of the rules as published, together with your affidavit, to this office, in order that the same may be filed in the office of the county clerk of your county.

Please acknowledge receipt of this.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *October* 9, 1900

Publisher Plattsburg Republican, Plattsburg, N. Y.:

Dear Sir—I send you herewith enclosed copy of rules and regulations for the protection from contamination of the public supply of potable waters and their sources for the village of Plattsburg, Clinton county, N. Y., with the request that the same be published in your paper once in each week for six consecutive weeks; and send bill for same to the water commissioners of the village of Plattsburgh, in compliance with the following section of law:

"Section 70. Rules and regulations of State Board—The State Board of Health may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and their sources within the state. If any such rule or regulation relates to a temporary source or act of contamination, any person violating such rule or regulation shall be liable to prosecution for misdemeanor for every such violation, and on conviction shall be punished by a fine not exceeding $200, or imprisonment not exceeding one year, or both. If any such rule or regulation relates to a permanent source or act of contamination, said board may impose penalties for the violation thereof or the non-compliance therewith, not exceeding $200 for every such violation or non-compliance. Every such rule or regulation shall be published at least once in each week for six consecutive weeks, in at least one newspaper of the county where the waters to which it relates are located. The cost of such publication shall be paid by the corporation or municipality benefited by the protection of the water supply, to which the rule or regulation published relates. The affidavit of the printer, publisher or proprietor of the newspaper in which such rule or regulation is published may be filed, with the rule or regulation published, in the county clerk's office of such county, and such affidavit and rule and regulation shall be conclusive evidence of such publication, and of all the facts therein stated in all courts and places."

After the rules have been published for six consecutive weeks as required by the above section of law, you will please forward a copy of the rules as published, together with your affidavit, to this office, in order that the same may be filed in the office of the county clerk of your county.

Please acknowledge receipt of this.

Very respectfully
BAXTER T. SMELZER
Secretary

ALBANY, *December* 13, 1900

Hon. CHARLES E. MARTIN, *County clerk Clinton county, Plattsburg, N. Y.:*

Dear Sir—Enclosed I send you a copy of the "Rules and regulations for the protection from contamination of the public supply of potable waters and their sources for the village of Plattsburg, Clinton county, N. Y., as approved by the State Board of Health September 20, 1900," together with the affidavit of G. F. Bixby, proprietor of the Plattsburg *Republican*, to the effect that said rules and regulations had been published in said newspaper once in each week for six weeks successively, commencing on the 13th day of October, 1900; also the affidavit of B. S. Cramer, foreman for the publishers of the Plattsburg *Sentinel*, to the effect that said rules and regulations were published in said paper once in each week for seven weeks successively, commencing on the 19th day of October, 1900, according to law.

The rules and regulations and affidavits are now sent to you for filing in your office in accordance with the provisions of section 70, article 5, of chapter 661, laws of 1893, as amended by chapter 251, laws of 1899.

Please acknowledge receipt.

Very respectfully
BAXTER T. SMELZER
Secretary

SING SING PRISON

Report of examination of the sanitary condition of the state prison at Sing Sing, N. Y., made Saturday, January 18, 1901, by Charles F. Wingate, sanitary engineer.

As the result of my examination of the above building including the drainage, ventilation and heating at the request of the Prison association of New York I would report as follows:

The prison was established at Sing Sing in 1824. The buildings are old, obsolete in plan and have suffered from years of hard usage. Erected at a time when security was the sole object, but little regard was given to the health and comfort of the inmates. The whole aspect of the cell-structure is dark, grim and forbidding, with massive stone walls that drip with moisture in foggy weather and are chilly in winter, and windows so deep and so small that the direct rays of the sun seldom enter. As the building extends north and south, one side of the building is entirely shut off from the sun for half of each day; even in the brightest sunshine it is difficult to read in any of the cells and a twilight gloom prevails which is a constant strain on the eyes. The cells which number 1200 are in six tiers and measure three feet three inches by six feet six inches in height and are seven feet long. The entrance is only 22 inches wide with a heavy iron gating set on the outside of a two-foot wall like the neck of a bottle so that very little light could enter even if there were no outer barrier; but with narrow slits of windows set in a fortress-like wall, some 10 feet distant, only a modicum of light can enter.

At one o'clock, at the time of my visit, on a bright cloudless day, the upper cells on the east side occupied by the new arrivals who had been quarantined for fear of smallpox, were so dark that it was just possible to distinguish their inmates through the grated doors.

The site of the prison is most unfortunate from a sanitary point of view and its selection was a gross error of judgment. Professor Parkes tersely remarks regarding the location of camps and barracks "Always chose a spot where there is drainage and into which there is no drainage" But the prison situation has neither of these advantages. Lying in a hollow between a sloping hillside and the Hudson it receives the surface drainage of the land above while it is built on made ground rising only six feet above tide level. Only one of the structures has a cellar and the subsoil is saturated with moisture rising by capillary attraction and by the rainfall and melted snow. Finally the sewage of the village discharges into the Hudson only a short distance above the prison and tends to pollute the stream and the outer surroundings.

The cell structure which measures 60x400 feet and is some 50 feet in height is simply a huge box of masonry set on a polluted soil and containing an inner box of 1200 cells occupied from 4 p. m. until 7 a. m. for sleeping places. Each cell has a capacity of 145 cubic feet of air while in some 150 cells where there are two inmates the air supply amounts to 72½ feet per head. This doubling up is necessitated by lack of sufficient accommodation and the constant scraping and whitewashing of all the cells to destroy vermin so that about a hundred cells are vacant all the time.

The minimum air space now required in lodging houses, tenements, schools, barracks and prisons is from 300 to 600 cubic feet for each person and 1000 to 1400 cubic feet in hospitals. But these figures assume that the air supply is continually replenished and the foul elements removed. To maintain health every adult requires 1000 to 1600 cubic feet of air per hour while the standard allowance for prisoners is 1700 feet per hour. No one would deny a prisoner sufficient food and drink, yet it is no less inhuman to refuse them an ample supply of sunlight and fresh air. Public sentiment would rebel at the thought of convicting a convict to half rations, yet the cubic air space provided for each convict in Sing Sing is less than one-third the normal amount and where the prisoners are "doubled up," the supply is one-sixth. This is very much like lung starvation and the consequences are and will continue to be serious. The only fresh air supply enters through the grated door while the sole means of exhaust, is a flue four by five inches in the rear wall which being roughly constructed with several bends and angles and having no heat or other means for creating an upward draft, is absolutely useless, and excepting in the case of the upper tier of cells when tested with a candle flame it was clear that they did not draw. One can readily imagine the effect of confining men, not naturally cleanly in such a cramped space with straw beds that rapidly absorb impurities, blankets that are seldom washed and with no possible escape for the products of respiration and the exhalations from their persons. Further contamination is caused by the night buckets with which each cell is supplied. It is not surprising that the interior atmosphere becomes very offensive and even when the cells are empty and the windows open the air within is stale and close.

But still other sources of air contamination must be noted and chief among these are the drainage arrangements.

The floor of the cell building is paved with blocks of stone and is washed down daily with a hose. A shallow open drain is intended to carry off the wash water, but a good deal of moisture penetrates through the cracks between the stone and increases the soil saturation. Four large inlets receive the bulk of the water and these are not trapped within the building but each drain has a running trap where it joins the main sewer in the yard outside. A surface drain is itself a source of foulness, and if it receive sewage it is still more objectionable; such a drain should be securely trapped at each inlet and should also be ventilated to prevent it becoming air-bound, especially where discharging into a sewer which is tide-locked at high water. Examining and testing with a lighted candle showed that there was a strong inward draft at each of the four inlets to the surface, and that foul air in great volume was escaping into the building, which is a dormitory for 1300 men. When as usual in cold weather the windows are closed these open drains are the chief air supply for the building, and the inward current is accelerated by the tide pressure at the outer end of the sewer. A more unsanitary arrangement could hardly be devised.

It is an axiom of sanitary science that a damp soil is a potent cause of disease, but when the soil is polluted as well as moist and when the air is thus contaminated everything is ripe for the development of contagion.

The effect of dampness is to debilitate and lower vitality and thus increase the individual susceptibility to all diseases, but particularly throat and lung disorders. The influence of dark and gloomy surroundings is also a potent factor in causing depression, just as sunshine and cheerfulness promote health. Indoor confinement and lack of exercise causes lassitude and loss of appetite, and it is noticeable that after Sundays or holidays prisoners are more restive and discontented than when they are able to work and go outdoors.

The prison buildings are heated by steam pipes carried along the side walls and a comfortable degree of warmth is maintained. There is, however, no source of fresh air supply excepting by opening windows, which is not practicable in severe weather except during the day time when the prisoners are at work or meals.

The air in the workshops was exceptionally good owing to the abundant sunshine, which is nature's purifier.

To ventilate the main building openings have been provided in the ceiling outside the cells leading into the attic and connecting with lowered cupolas on the roof, but these outlets are insufficient to provide much relief and they are seldom open. The area of the building is so great, 1,000,000 cubic feet of air space, that nothing but forced ventilation would serve any practical purpose.

The plumbing in the cell building is limited to one closet and urinal on the ground floor and a sink for draining water on each tier above. These sinks are not separately trapped as is now considered essential, but a single trap is placed at the bottom of the waste pipe which can be easily siphoned, while as the waste pipe does not extend through the roof to the outer air, another undesirable requirement, the foul odors from the slime-coated interior has free vent into the building and add one more source of pollution.

The plumbing in the chapel building and some of the new work that has recently been put in and that in the printing building is according to modern requirements, though there is a lack of trap ventilation, but in the old workshops the waste pipes are not extended through the roof, the sinks and urinals are not properly trapped, the water-closets have no cisterns and the water for flushing is insufficient so that the closet traps are choked and have to be cleared by hand; such conditions would readily assist the spread of typhoid from an imported case of fever.

The prevalence of grip, which has affected nearly every prisoner; the constant complaints of headache, aches and pains and constipation and the recent epidemic of typhoid and consumption, the latter attacking the younger and most robust convicts, points unmistakably to the presence of conditions not conducive to health and confirm the results of my examinations. Where vermin breed so abundantly as to defy whitewash, sulphur fumes and other destructive agencies, disease germs will also flourish and no better laboratory for their propagation and diffusion could be devised; cleanliness and purity of air are impossible under such conditions, despite the manifest desire on the part of the officials to do their best. The air-ducts being inaccessible, form admirable nesting places for vermin and germs and should be sealed up rather than be retained in their present condition.

Fortunately the workshops are in separate buildings with large windows and high ceilings, the walls freshly whitewashed and every part blazing with sunshine, with plants growing in window boxes and every appearance of cheerfulness. These influences undoubtedly help to counteract the effect of the unsanitary cells, and but for them I am sure the mortality record of the inmates would be far worse than it is.

I am satisfied that the typhoid cases have been fostered by conditions within the building and that they cannot be charged to the water supply. A single imported care might easily infect a number of other prisoners, where such defective plumbing fixtures are used by large numbers; I must therefore condemn the entire sanitary arrangements in the most unqualified manner and urge their radical renovation, or better still, that the prison buildings be condemned and new ones constructed in their place.

Throat and lung diseases abound in most prisons and the mortality from consumption in such institutions is three or four times as great as under ordinary conditions outside. At the Millbank penitentiary, London, 75 out of a total of 174 deaths in a single year, or 43 per cent, were due to consumption, while 90 other tuberculous patients were sent away the same year to save their lives. In an Alabama prison so many cases of consumption recently occurred that it was proposed to isolate the patients in a camp for special treatment.

In a letter to Dr. S. A. Knopf, of this city, from Dr. J. V. Hunt, secretary of the American public health association, dated September 14, 1900, which I have been permitted to copy, it is stated that an outbreak of tuberculosis occurred last year in the state reformatory at Jeffersonville, Ind., in consequence of excessive crowding while a new building was being constructed. Some 500 convicts were locked into a space designed for 200, and in consequence there was a marked increase in tubercular cases and other diseases. An attempt was made to neutralize the overcrowding by a system of forced ventilation but apparently with little results, and the problem of disinfecting the infected cells is a difficult one.

The report of the board of managers of the Elmira reformatory for the year ending September 30, 1900, says in part:

"For a number of years tuberculosis has been an increasing and dangerous feature among our prisoners. Many have it upon arrival in a more or less advanced stage; others develop it under the trying conditions of prison life, with cellular confinement, and association with those already affected, and all unite in communicating the subtle and poisonous infection to their clothing, their bedding and the air of the cells and the corridors. The management further became convinced, by careful scrutiny, extending over many months, that prisoners, healthy on arrival, became affected, and sometimes with astonishing rapidity, by the disease from being steadily confined in the same cell with a tuberculosis subject."

In view of the efforts being made to check the spread of tuberculosis and the large expenditure for a state sanitarium for consumptives in the Adirondacks, it seems wise to use all possible means to prevent the creation of new centers of contagion by making our prisons sanitary.

Every new arrival should be rigidly examined on entering the prison, to insure that his lungs are sound, and the examination should be repeated every three months so as to check the disease in its early stages, and all suspicious cases should be carefully isolated to prevent the spread of the contagion.

HEARING BEFORE STATE BOARD OF HEALTH

SING SING PRISON

As commissioner of the United States on the international prison commission I visited many prisons abroad.

The defects of a prison like Sing Sing are very evident when compared with the best modern prisons abroad. Sing Sing belongs to an early and now outgrown form of prison architecture. England has long since demolished Millbank, one of its old prisons with which Sing Sing may be compared.

When it comes to the question of the moral treatment of prisoners it is evident that Sing Sing prison is in no way fitted to secure the best results. There is not a prison reformer in the United States of any prominence who does not know that Sing Sing is an old, grim, mediaeval mass of stone which represents the traditions of the past and not those of to-day. Sing Sing prison is in prison architecture what an old smooth-bore gun is in ordnance. It belongs to the days of tallowdips and stage coaches. Even if it were entirely healthy it ought to be condemned because it is not fitted for the purposes of a modern prison.

But I assume that this Board, however much it might be interested in the moral aspects of this question, would claim no jurisdiction in that respect, and I must confine myself entirely to the sanitary condition of this prison.

LIGHT AND VENTILATION

The year before last I visited 13 prisons in Italy, also prisons in France, in England and in Scotland. Last year I visited prisons in Belgium and Germany.

As instances of prisons that have been discarded by modern civilization there is the Mamertine at Rome, the famous old dungeon at Rothenburg—death from want of air.

The Ducal palace at Venice. The transition from the dungeon to a better type of prison, Millbank and Sing Sing represented something better, but we did not know enough as to sanitary science.

So in the old countries, in England and France, Germany, Switzerland, Italy and Russia the new types of prison are, viewed simply from the sanitary point, almost as much in advance of Sing Sing as that prison is better than the Mamertine or the dungeon at Rothenburg.

In Italy there is a very distinct difference in the health rate of the old prisons and the new ones. Italy has converted some of her monasteries into prisons. Some of these are damp and not well drained. One of the worst of the old prisons is that at Finalborgo. It is situated close to a river; it is a heavy stone fortress; it is enveloped in dampness and as a result there is a great deal of consumption. The mortality, I think, is 59 per cent from tuberculosis.

But Italy is abandoning as fast as she can her old, dark, ill-ventilated prisons. Her new prisons are built so as to have light in every cell and the best of ventilation. One of the finest of these prisons is at Rome, and another, a new one, which I visited the summer before last, at Genoa. The cells at Genoa are 6½ by 13 feet, and about 10 feet high. They contain 875 cubic feet. Every cell is lighted and ventilated directly from the open air, as each cell opens into a large yard. In the prison at Fresnes, about half an hour from Paris, one of the finest in the world, the cubic contents of the cell are still greater, being 1050. In addition to this large provision for air space a great deal of money has been laid out in having them thoroughly ventilated, the air being forced into the cells by blowers.

In Glasgow the cells measured none less than 900 feet, and there were some of 1050 cubic feet. Some of the Scotch prisons ventilate directly from the corridor, but this is condemned as unhealthy and in the new structures each cell is ventilated directly in the open air. When the structure of the prison will not permit the cells to be ventilated by opening a window into the yard, ventilating pipes have been introduced and carried to the external air. As measured by Mr. Wingate the cells of Sing Sing prison measure but 145 cubic feet. The cells in the United States penitentiary at Leavenworth are by no means as large as prisons I have quoted. They are 5½ feet by 9 feet with 9-foot ceiling, giving 450 cubic feet. Thus they are three times as large as the Sing Sing cells, and the air is drawn in and forced out by steam fans. The constant flow of air fills and empties the cell-house every 30 minutes.

The English barracks improvement commissioners demanded that the supply of air for soldiers should not be less than 1200 cubic feet per man per hour. Morin Etudes sur la Ventilation, Paris, 1863, claims that ordinary hospitals should not have less than 2000 to 2400 cubic feet per person per hour, epidemic hospitals 5000, for prisons 1700, theatres 1400 to 1700. The cells of the Mount Joy prison in Dublin are 7 by 13 and 9 feet high, giving 819 cubic feet. The cells at the Corkmail prison are 8 by 15 feet, the height not being given, but probably not less than 9 feet, which would give 1080 cubic feet. In Galton jail, Edinburgh, the cells are 8 by 13 feet. The female prison at Glasgow

8 by 10 feet. At Pentonville, London, the cells have 680 cubic feet of air, and the hospital cells 1000 feet. In Freiburg in Baden, where I was last summer, the cells are 10 by 12 feet and of corresponding height, giving 1000 cubic feet. At Arnheim in Holland it is 9 by 13 feet. At Louvin, Belgium, 8 by 13. Thus nearly all these prisons mentioned have a cell area of from 900 to 1000 feet. Compare with these the pitiful allowance at Sing Sing of 145 cubic feet, and then remember that 300 of these prisoners are doubled up, that is, sleep two in a cell.

REPORTS OF INSPECTORS AT BARREN ISLAND AND CHEEKTOWAGA

NEW YORK, *December* 31, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Sir—I have the honor to hereby render a general report of the work at Barren island for the season of 1900.

Interest naturally centres about the work of the Sanitary utilization company, not only because it is the largest plant for the disposal of garbage in the world, but because there is being worked out one of the great problems of the day, that of the best method of disposing of the refuse of great cities from a sanitary as well as an economic standpoint.

It would perhaps be too much to say that this question has been entirely solved, but the operation of these works at Barren island has seemed to show that the process there used, although capable of improvement in various ways, can do the work effectively, profitably and without offense to the residents of nearby places.

The island is fortunate in its situation for such a purpose, being easily accessible by water, and being at least one mile from any part of the mainland suitable for home building.

A larger amount of material has been disposed of than in any previous year, to the natural increase being added the garbage from the shore towns of Staten island and Rockaway, including Arverne; inland towns like Jamaica, Far Rockaway and College Point have mostly disposed of their garbage by cremation, a wasteful method, but probably the best for small communities. During July and August the average amount of material utilized in the works at Barren island was nearly 1300 tons a day.

But few complaints concerning odors were made during the year, and they were written by persons with whom it has become a settled habit. Such complaints as were sent to your Board were promptly investigated and found to have had little or no foundation. The most striking case was that of a complaint from a resident of Cedarhurst, who complained of odors so intense and noxious as to cause illness. Diligent inquiry among his neighbors failed to find any one who had noticed any odor at the time specified, or any other, for more than a year.

Careful inquiries were also made at different times during the summer at the various summer resorts in the vicinity, and in no instance was there any complaint as to odors from the island.

The cause for the successful operation of this plant this year as compared with previous years is mainly that the street cleaning department has made an effort to cooperate with the company in the handling of the material, which has in consequence been delivered to the works in fairly good condition, and disposed of as rapidly as the capacity would allow. Credit is also due to the new management of the plant, which has been more efficient than in previous years.

It is the intention of this company, if their contract is renewed, to secure more perfect cooperation with the street cleaning department so that if possible all garbage collected during the day shall be removed to the island at night; to add several digesters to the 96 now in use, and to repair the plant thoroughly wherever necessary.

If this is carried out there will be no trouble in the future so long as the present careful management continues.

The fertilizer plant of the E. Frank Coe company has during the year done the largest business in its history; their new plant for the production of sulphuric acid has also been operated to its fullest capacity. This plant has always been carefully managed, but little if any mixing is done during the warm weather, and the part of the building where this is done is tightly inclosed.

The two plants for the disposal of dead animals and offal have both been managed carefully and successfully in every way.

During the year the Brooklyn plant, owned by McKeever brothers, has been improved until it is a model of its kind. Perhaps the most important improvement is a flowing well of fresh water reached at a depth of 900 feet.

The general health of the people on the island is excellent. The population is now about 800, and I think it is safe to say that there is no community in this country where the sick and death rate is lower.

The year has been one of general improvement on the island; two churches have been built and are now in use. A schoolhouse costing $25,000 is nearing completion. Trees have been planted and flowers are cultivated; in fact, the people of Barren island have discovered that they are a part of the world and have caught the spirit of progress.

Respectfully submitted.

ORVILLE LEWIS

Inspector

YEARLY REPORT OF INSPECTOR J. T. CLARIS ON THE GARBAGE AND RENDERING WORKS OF CHEEKTOWAGA TO THE NEW YORK STATE BOARD OF HEALTH, FOR THE YEAR ENDING DECEMBER 31, 1900

There were considerable changes in the different rendering and garbage works in Cheektowaga in the past year. Everything seemed to be running along in a smooth and satisfactory manner until the burning of the Milsom rendering plant and the Baynes garbage and reduction company, and now things are in a very unsatisfactory state of affairs and will be so until the two places are rebuilt and in working order again. The first time that I was aware that any of the residents had any grievances as to the manner in which the different works were conducted was at the meeting of a special committee of the State Board of Health at the Iroquois hotel on November 30th, for in a period extending over four years not a single complaint had been made to me about any of the different works not running in a sanitary manner, though I had notified a number of the prominent residents that if at any time, day or night, any objectionable smells were noticeable to telephone me and I would immediately go out and investigate; but, as I said before, nobody made any complaint and I feel confident that if the two plants were not destroyed by fire and that certain land companies were not so desirous to have the works moved further out, otherwise there would not have been any other complaints. On the other hand, the land companies cannot be blamed if they could get rid of any objectionable surroundings so that there would not be any obstacles in their way when they had a chance to dispose of their land.

The Milsom rendering and fertilizer company was entirely destroyed by fire on June 29th, and since that time they have been using the Cushing factory. It will be March or April, 1901, before they will have the new factory completed, and when they do it will only have a rendering department, as the fertilizer branch has been transferred to the Crocker works. They have spared no pains nor expense in trying to have everything built in a satisfactory and sanitary manner. The main building will be about 500 feet further east than the old building. The Cushing factory that they have been using for the past six months is situated on Babcock street in a fairly thickly settled part of the city. It has none of the sanitary tanks, dryers, condensers and other modern improvements that they had in the old works which was destroyed, and as far as I know the board of health of the city of Buffalo have had no trouble with them. It seems strange to me that with none of the modern improvements at the present works, also situated in the city, and can conduct their business without the city board of health being after them; that with the modern plant they formerly had and situated in a poorly settled section with an inspector constantly after them and without a single complaint in over four years, that there were some things said at that investigation at the Iroquois, November 30th, that cannot be fully understood.

The Baynes garbage and reduction company was also destroyed by fire on October 1st, not as completely destroyed as the other factory, but to such an extent as to make it utterly useless for the disposal of garbage. The company has done very little since the fire in the way of rebuilding, and the board of public works is very anxious to have them go ahead and get their plant in working order, as they are now disposing of the garbage of Buffalo by placing it on railroad cars and delivering it through the country to farmers, which of course will not be a very sanitary manner, and especially when the warm weather comes on. I understand that one of the greatest hitches between the garbage works and the city of Buffalo is the length of time the contract for the disposal of the garbage has to run, which is less than a year and a half. The garbage people cannot put up a strictly first-class plant and conduct it on sanitary lines at the low price they are receiving now and have it terminate in so short a time. The board of public works is very much concerned as to the disposal of the garbage, especially as the coming year is Pan-American.

The Fechter rendering and fertilizer works have increased their business considerably in the past few months and are running in a satisfactory manner. Cannot say much about them as everything is all right and there is no use of taking up your time when everything is satisfactory.

The Betz brothers rendering works handle no dead animals, and are keeping their place in good shape and everything is clean and in a healthy condition about the place.

Yours obediently

JOHN T. CLARIS

Inspector

FOOD AND DRUGS

REPORT

OF

Willis G. Tucker, M. D., Ph. D.

Director State Board of Health Laboratory

Baxter T. Smelzer, M. D., *Secretary State Board of Health, Albany, N. Y.:*

Sir—During the year ending December 31, 1900, 57 samples of drinking water from various parts of the state have been received, of which number 50, being in good condition and sufficient quantity, were analyzed and reported upon; and 45 other articles, including food and food-colors, sewages and miscellaneous substances which have been submitted to me from time to time have been examined. An investigation of coloring substances used in food, referred to in my last annual report as having been entered upon in December in compliance with a law passed by the legislature of 1899, was completed in February, and other matters of minor importance which have been referred to me have received attention. The correspondence of the laboratory has been quite extensive, and many inquiries concerning food and drug adulteration, the testing of illuminating oils, analytical methods and standards, water supply and pollution, and similar matters have been answered and the desired information supplied. Reports upon the work of the laboratory have been transmitted monthly as heretofore, and a summary of this work, with certain reports not elsewhere appearing in the report of the Board, is now transmitted as follows:

January 4. Received sample of water from Waverly, marked "Waverly water supply," and forwarded by the board of health of Waverly. Ordered examined January 2. Analyzed and reported upon January 9.

January 31. Received sample of "None-such pumpkin" and letter from Dr. C. N. Hammond, health officer, Elmira Heights, stating that the use of the same was thought to have occasioned illness. Examined same and reported as follows:

ALBANY, *February* 7, 1900

BAXTER T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—On January 31 I received from you a bottle said to contain "diluted 'None-such prepared pumpkin' purchased at a grocery store" with a copy of a letter from Dr. C. N. Hammond, health officer, Elmira Heights, from whom it had been received, in which it was stated that "two persons ate of it, one while dry, the other after being diluted," and stating that these persons had been poisoned from eating it. The bottle contained a thick fluid, apparently such as might have been prepared for making pies which, when received, was in a state of active fermentation. I fed a portion of the fluid to a cat, which ate part of it and suffered no ill effects. Portions of the fluid have been examined for metalic poisons, but no arsenic, antimony or other mineral poison has been detected. If this material gave rise to symptoms of acute poisoning such symptoms may have been occasioned by putrefactive changes resulting in the formation of poisonous ptomaines, but the possibility ought not to be lost sight of that the symptoms described may have resulted from some other and undiscovered cause. Since no fatal results followed, and no criminal action seems to have been suspected, it would seem to be unnecessary to make further examination.

Very respectfully your obedient servant

WILLIS G. TUCKER

Director

February 12. Received sample of water from Dr. G. Herbert Brown, health officer, Highland Falls, together with another sample which was broken in transit. Ordered examined February 2. Analyzed and reported upon February 20.

February 17. Submitted following report of coloring matters used in food.

REPORT UPON EXAMINATION OF FOOD COLORS

ALBANY, *April* 2, 1900

To the Legislature:

I have the honor to transmit herewith the report of the State Board of Health upon examination of samples of food colors in conformity with the provisions of chapter 518 of the laws of 1899.

THEODORE ROOSEVELT

ALBANY, *February* 17, 1900

BAXTER T. SMELZER, *Secretary New York State Board of Health, Albany, N. Y.:*

Dear Sir—In accordance with your instructions of December 6th last, and in accordance with the provisions of chapter 518 of the laws of 1899, entitled "An act to amend the agricultural law, relating to the manufacture and use of coloring matter in food products," I caused to be purchased in this city a number of samples of articles found on sale in the stores and intended for the coloring of foods, and have caused an examination of the same to be made. The act referred to provides that "No person or persons shall manufacture, sell or expose for sale any poisonous coloring matter for the coloring of food products of any kind, nor shall any person or persons use any poisonous coloring matter manufactured, sold, offered or exposed for sale within this state; nor shall any person or persons sell, offer or expose for sale any food product containing such poisonous coloring matter", and it makes it the duty of the State Board of Health to "cause samples of coloring matter that are exposed for sale upon the market for use in food products, to be analyzed and report the results of such analysis to the legislature at the next session", but as no appropriation was made for defraying the expenses of such an investigation, and our laboratory facilities, assistance, and means for carrying on our present and necessary work already insufficient, it has been impossible to make such an investigation of the subject as its seeming importance might be thought to demand. I can therefore only report upon the examination of a limited number of samples, which samples are, however, believed to be typical of their class, and give some brief account of the subject in a general way and as it may be viewed from a sanitary standpoint.

USE OF FOOD COLORS NOT A RECENT PRACTICE

The use of coloring matters in articles of food and drink is very far from being a recent practice. Accum, in his *Treatise on adulterations of food and culinary poisons*, published in London in 1820, and one of the earliest works of its kind, points out that "gerkins, French beans, samphires and many other pickled vegetables," are often met with impregnated with copper, and says that "numerous fatal consequences are known to have ensued from the use of these stimulants of the palate, to which the fresh and pleasing hue has been imparted according to the deadly form laid down in some modern cookery books, such as boiling the pickles with half-pence, or suffering them to stand for a considerable period in brazen vessels." He also points out that sweetmeats and similar articles may contain red lead as well as copper; that anchovy sauce is sometimes colored with a venetian red to which "orange lead" has been added; and that other harmful colors are made use of for a similar purpose. The use of cochineal in candy, of venetian red in anchovy paste, of caramel in distilled liquors, and copper in pickles, is certainly very old, and if the coloring matters employed are harmless their use has seldom been condemned. The matter, therefore, would seem to resolve itself into the consideration of the effect upon health of the articles thus added to our food.

EXISTING LEGISLATION IN THIS STATE

The Public health law, article 3, in defining "adulterations" includes the coloring of food "whereby damage is concealed or it is made to appear other than it really is, or of greater value"; the addition of any "poisonous ingredient," and, in the case of confectionery, "if it contains terra alba, barytes, talc or other mineral substance, or poisonous colors or flavors." And the agricultural law prohibits the addition of "any foreign substance whatever" to milk, and the introduction of any coloring matters of any kind whatever into imitation butter or imitation cheese. Chapter 518 of 1899, being an amendment to this law, prohibits the manufacture, sale or use of any "poisonous" coloring matter, and the sale of any "food product containing such poisonous coloring matter," and, since the addition of any "poisonous" ingredient to any article of food is now specifically prohibited in the Public health law, this amendment really adds nothing material to the legal provisions already existing.

WHAT CONSTITUTES A POISON

Our first inquiry should naturally be, what constitutes a "poisonous" substance? In attempting to give an answer to this question we are confronted at the outset with many difficulties. Toxicologists give lengthy definitions of poisons and none which are perfectly satisfactory. Webster defines a poison as "any substance which, when introduced into the animal organism, is capable of producing a morbid, noxious or deadly effect upon it," and Funk and Wagnalls' definition, "a substance that when taken into the system acts in a noxious manner, by means not mechanical, tending to cause death or serious detriment to health," is not very different, but it is to be remembered that age, physical condition and individual idiosyncrasy enter so largely into the problem that there are few substances that might not be poisonous to some persons, and it is equally true that there are many substances, commonly regarded as poisons, which, when properly used, are capable of acting beneficially upon others. Even such articles as salt or mustard may act as poisons, and persons have died from the effects of large doses of saltpeter, cream of tartar and alum. Alcohol is properly classed with poisons in all treatises upon toxicology, and it has often caused death, but it would by no means be commonly considered in such a light. And the difficulties are increased when we consider that in the case of many, and particularly of newly discovered bodies, trustworthy evidence as to their effect upon the human system is lacking, and the further fact that the opinions of writers and experts, recognized as authorities upon these matters, differ very widely in many instances.

LEGISLATION IN FOREIGN COUNTRIES

The list of foreign substances used for coloring foods is almost endless, but some foreign countries in their laws specifically define the colors that may be employed. The English law, however, is like our own in simply prohibiting the use of "injurious ingredients," and Otto Hehner, one of the editors of the *Analyst*, the organ of the Society of public analysts of Grat Britain, has recently stated that "so far as I know no case has come under this paragraph of the law of 1873 since its enactment. Aniline colors, so long as they are not strongly arsenical, are not regarded as injurious." The German, Austrian and French laws enumerate the harmful colors the use of which is forbidden. In Germany colors containing antimony, arsenic, barium, lead, cadmium, chromium, copper, mercury, uranium, zinc, tin, gamboge, corallin and picric acid, are all prohibited. The Austrian law is much more radical and forbids the employment of any coal tar products on the ground that the action of many of them upon the human organism is unknown and that they are liable to suspicious adulteration. In France the use of the following substances is prohibited: Mountain blue, red lead, orange mineral, Paris yellow, Cassel's yellow, Turner's yellow, white lead, silver white, Naples yellow, chrome yellow, orange chrome, barium chromate, yellow ultramarine, copper arsenite, Scheele's green, Schweinfurth green, mixed green, vermillion, gamboge, aconite, fuchsin and its derivatives, e. g., Lyons blue and eosin, colors containing nitro groups, e. g., naphthol yellow and Victoria yellow, and colors prepared from diazo compounds, e. g., tropaeolins and xylidine red. In Italy the Superior council of health, with the approval of the minister of the interior, is authorized to forbid the use of such colors as are believed to be injurious in the manufacture or preparation of household articles, toys, and articles of food and drink.

To some of these laws the objection may be raised that, if certain articles are specifically prohibited, by inference, at least, all others are permitted, and hence the list of objectionable articles must be complete, and this is obviously impossible. New articles are constantly coming into use and frequent revision of such laws must therefore be necessary. Various articles are known under different trade-names and therefore are not easily defined, and such rigorous laws as those of Austria place unnecessary restrictions upon trade and operate disadvantageously in many ways. In brief, most of the foreign laws are complicated, require frequent amendment and are difficult to enforce, and it is a question whether the simple prohibition of poisonous or harmful ingredients in food articles is not on the whole more satisfactory than elaborate legislation which attempts to fix the place of every conceivable coloring agent which has been used, is in use at present, or may be used in the future.

SOME COLORS HARMLESS

If an attempt were made to catalogue food colors and pass upon their quality from a sanitary standpoint, I suppose that most persons whose opinions in such matters would be deemed valuable, would agree in classing certain articles as harmful, and certain others as harmless, but a considerable number would remain which would be considered doubtful and as to their employment opinions would differ widely. In the harmful class we should expect to find preparations containing arsenic, antimony, lead, copper, barium, zinc, mercury, and indeed most compounds of the heavy metals with the exception of a few such as ochre and Venetian red, and also such articles as gamboge, picric acid, Martius' yellow and dinitrocresol, or saffron substitute. Among the harmless colors we should expect to find caramel, turmeric, saffron, safflower, annatto, cochineal, ultramarine, lakes prepared with vegetable colors, spinach green, and many other vegetable juices and extracts. But as to some colors, and more particularly perhaps the coal tar colors, opinions would differ widely. On general grounds some experts would object to all of them while others would proscribe the use of certain colors only. I think that it cannot be denied that certain of these colors are, in themselves, actually poisonous, and that certain others may contain accidental impurities which render their employment unsafe, but that they are, as a class, necessarily harmful can no longer, I think, be maintained, and it will be advisable to consider this matter somewhat carefully though not necessarily at great length.

THE COAL TAR COLORS

In a general way these colors are often referred to as aniline colors, but, since many of them are derivatives of other substances than anilin, while all are derived from some constituent or product of coal tar, they are more accurately denominated coal tar colors. They come into trade in various forms, in powder and paste, soluble and insoluble, and they are often mixed with dextrin, and with various salts, and sometimes with each other, and they are known by many names, often fanciful, since their scientific names may be of great length, and often misleading. Since many of them are derived from anilin, a poisonous substance, it was at first, and very naturally, assumed that they were themselves poisonous, and since arsenic and mercury are employed in the preparation of many of them, it was likewise assumed that these substances must be present in the products, but such was never necessarily the case, nor is it generally the case at present. Fuchsin, one of the first anilin colors commercially produced, was for a long time believed to be a poison, but is, when pure, no longer regarded as such, and experiments upon animals, and the experience of operatives in works where this color is made, have demonstrated its harmlessness. Statistics quoted by Weyl and based upon the investigations of Grandhomme and others, indicate that "the poisonous qualities of the aniline colors are not manifested among those who manufacture them." Weyl's work is well known and his treatise upon the sanitary relations of the coal tar colors, embodying the results of his investigations and experimental researches, has been made available to English readers by Dr. Henry Leffmann's translation, which, though published some years since, is still timely and of the highest value. In his preface to this work the translator remarks:

> "It will be a source of gratification to the practical sanitarian to note the comparatively small proportion of really injurious colors, for even with some of those which produce marked toxic symptoms such large doses are required as to make it unlikely that serious results could occur by accident. The coloring power of these bodies is so high, as a rule, that almost inappreciable proportions are required for coloring articles of food, so that acute effects, at least, are impossible. A manufacturing confectioner in this city (Philadelphia), for whom I make examinations of colors used by him, informs me that a yellow color sold as auramine, has such high tinctorial power, that one ounce will color two thousand pounds of candy to the highest yellow tint required in his business. It is obvious that the toxic dose of such a body would have to be very high indeed to render it harmful in such use."

The coal tar colors are variously classified, but most of them may be placed in one or the other of the following groups:

I. Nitro colors, as picric acid.
II. Nitroso colors, as naphthol green B.
III. Triphenylmethane colors, or anilins proper, as fuchsin.
IV. Azo colors, as Bismark brown.
V. Phthaleins, as eosin.
VI. Anthracenes, as alizarin.
VII. Rosolic acid colors, as corallin.
VIII. Indophenols and safranines, as methylene blue.
IX. Quinoline colors, as cyanine.

Some of Weyl's conclusions, based in the main upon physiological experiments, as to the effect upon health of specific coal tar colors may be stated. The following he considers actively poisonous or distinctly objectionable:

Picric acid. "While the acid must be considered poisonous its injurious character is far less than has been generally assumed. Nevertheless, the legal prohibition of its use as a coloring matter for food or drink is just."

Dinitrocresol (saffron substitute). "Highly poisonous even in small amounts, and the sale of such a substance should be restricted by legal provisions."

Martius' yellow (known also as naphthol yellow, naphthalene yellow, saffron yellow and golden yellow). "As a coloring matter for food or drink, its use should be wholly prohibited."

Orange II (known also as beta-naphthol orange, tropaeolin 0 0 0 2, and golden orange). "Poisonous in small doses when administered by the stomach and suffices to kill a moderately strong dog."

Metanil yellow, or orange MN. "Poisonous when administered by the stomach in sufficient quantity."

The following Weyl does not consider poisonous, but he regards them as suspicious since when administered to animals in fairly large doses they gave rise to more or less disturbance: Bismarck brown, Soudan I, chrysoidin, diphenylamin orange, and fast brown G, but it is to be observed that such effects as were produced upon animals by these colors followed the administration of fairly large quantities of the undiluted colors and such quantities as would never exist in food articles were they employed in such.

The following colors Weyl considers harmless: Naphthol yellow S, known also as fast yellow, anilin yellow and solid yellow, but not to be confounded with Martius' yellow; Ponceau 4 G. B., known also as crocein and as brilliant orange; azarin S; wool black; naphthol black P; (by the stomach); Congo red; chrysamin R; and he states on the authority of Grandhomme that aniline blue, aniline violet and malachite green are equally harmless. Weyl also cites the experiments of Cazeneuve and Lépine proving that the following colors used in wines are harmless: orange, ponceau R, purple and solid yellow, and he quotes Grandhomme's assertion that rabbits bear without injury fuchsin free from arsenic, eosin, erythrosin, orange, and butter yellow (dimethylamidoazobenzene).

In the 10th annual report of the Ohio dairy and food commissioner (1896) Professor H. A. Webber gives the results of certain experiments performed by him in which the effects of oroline yellow, saffoline, magenta, and methyl orange, upon peptic and pancreatic digestion are stated, and from his experiments he concludes that "so far as these four colors are concerned, none interfere with both peptic and pancreatic digestion, but that each color interferes seriously either with one or the other."

From the foregoing it may be seen that the opinion entertained by some writers, and frequently expressed, and perhaps popularly held, that the coal tar colors are poisonous as a class, necessarily harmful, and all of them objectionable, is by no means correct. As long ago as 1885 Hassall stated, "A great variety of colors are now prepared from coal tar, nearly every tint being imitated. Against the employment of these dyes, including the aniline dyes, there is little to be urged providing they are pure." (Hassall, *Food*, p. 258.) And Blyth in the last edition of his *Foods* (1896) says (p. 90-91):

> "It will often be necessary to ascertain the exact coloring matter used to make articles of food attractive, more especially confectionery, jellies, pickles, etc. The question will generally resolve itself into deciding as to whether the color is harmless or poisonous, and, if the latter, whether the poison is in sufficient quantity to injure the consumer's health. The poisonous coloring matters are those containing lead, copper, arsenic, chromium, and zinc, all of mineral origin; together with a few injurious organic coloring substances, such as gamboge and picric acid. The non-poisonous coloring matters are some of the aniline colors, *so long as they are pure, and contain no arsenic*, saffron tumeric, annatto, chlorophyll, and generally, (with some exceptions) all organic colors obtained from the vegetable and animal kingdoms."

And again, in treating of colors used in confectionery, at p. 151, Blyth, after citing various harmless vegetable colors, says: "Besides these there are the aniline colors which when pure have not been found to be injurious." In the report of the State Board of Health of Massachusetts for 1898 the analyst of food and drugs in referring to the infrequent use of chromate of lead in confectionery, says: "Of late years this pigment is rarely used as a coloring for candy, since the harmless anilines are much more brilliant and serviceable for this purpose."

EXAMINATION OF SAMPLES

Twenty-five samples of food colors, prepared for household or dairy use, as in coloring soups, ice-cream, water ices, jellies, confectionery and desserts, butter and other dairy products, etc., were purchased in Albany in December last and these were examined under my direction by Theodore J. Bradley, Ph.G., who has served as chemist in this laboratory at various times, with a view chiefly to determining the nature of the color present since the vehicle in which it is contained serves merely to dilute it and is of little importance. The recognition of coal tar colors is attended with many difficulties and, in the case of those articles which owed their color to some of these compounds, it was seldom practicable to determine with certainty the precise color present, but its probable nature, or class to which the color belonged, was generally ascertained with reasonable certainty. Positive identification is rendered difficult by the fact that these compounds are very numerous and some of them new; that they are known by different names, and that several different colors are sometimes mixed in a single preparation. They are also frequently combined with inorganic salts, such as sulphate or carbonate of sodium, or chloride of ammonium, and are mingled with a variety of substances serving as diluents in the preparations as sold. Positive tests for certain of these colors are lacking, and comprehensive schemes for their separation and identification, which can be satisfactorily applied in all cases in actual practice, have not yet been elaborated and, from the nature of the case, probably never will be. Schultz and Julius', and Stein's methods of procedure, as given by Blyth in the last edition of his *Foods*, and Weingartner's tables, as given by Allen in his *Commercial Organic Analysis*, were made use of in part and proved very helpful. It has not been deemed proper to insert the name of the manufacturer in describing the samples tested, for various reasons, but chiefly because it is not desired, directly or by implication, either to commend or condemn any of these preparations, this not having been the purpose of the present inquiry.

No. 1. Labeled: "Confectioners color, green, (non-poisonous)." Manufactured in Albany. Consists of about eight ounces of a bright green paste contained in a wide-mouthed bottle. Price 70 cents. Appears to contain spirit soluble green, an aniline green.

No. 2. Labeled: "Confectioners color, red, (non-poisonous)." Manufactured in Albany. Consists of about eight ounces of a bright red paste contained in a wide-mouthed bottle. Price 50 cents. Appears to contain an azo color and probably from benzidine. A coal tar color.

No. 3. Labeled: "Confectioners color, yellow, (non-poisonous)." Manufactured in Albany. Consists of about eight ounces of a bright yellow paste contained in a wide-mouthed bottle. Price 50 cents. Appears to contain a nitro color and probably naphthol yellow S, or brilliant yellow. A coal tar color.

No. 4. Labeled: "Parisian essence, for browning and coloring gravies, broths, beef-tea, soups, etc." Made in England. Consists of about six fluid ounces of a thick brown liquid contained in a tall glass bottle. Price 25 cents. Color due to caramel.

No. 5. Labeled: "Concentrated kitchen bouquet, for flavoring and coloring soups, gravies, etc." Made in West Hoboken, N. J. Consists of about six fluid ounces of a brown liquid in a glass bottle. Price 25 cents. Color due to caramel. Is flavored with spices.

No. 6. Labeled: "French paste to season and color soups." Apparently manufactured in Boston. Consists of a dozen small portions of a spiced paste, each wrapped in waxed paper and contained in a tin box. Price 10 cents. Color due to caramel.

No. 7. Labeled: "Standard color pastes, caramel." Manufactured in Boston. This preparation, as also Nos. 8, 9, 10, 11, 12 and 25, is accompanied by a certificate signed by a well-known chemist, stating that they have been examined by him and found to be "free from all harmful and injurious ingredients, and are therefore safe to use for coloring foods, etc." Consists of about an ounce of a brown paste in a screw cap vial. Price 25 cents. Color due to caramel.

No. 8. Labeled: "Standard color pastes, violet." Manufactured in Boston. Consists of about an ounce of a paste of a deep violet color with bronze lustre in a screw cap vial. Price 25 cents. Appears to contain Victoria blue, and probably Victoria blue 4 R. A coal tar color.

No. 9. Labeled: "Standard color pastes, damask rose." Manufactured in Boston. Consists of about an ounce of a deep red paste contained in a screw cap vial. Price 25 cents. Appears to contain rhodamine. A coal tar color.

No. 10. Labeled: "Standard color pastes, golden yellow." Manufactured in Boston. Consists of about one quarter of an ounce of a deep yellow solid probably remaining from the drying of a paste, contained in a small screw cap jar. Price 10 cents. Apparently contains naphthol yellow S. A coal tar color.

No. 11. Labeled: "Standard color pastes, leaf green." Manufactured in Boston. Consists of about one quarter of an ounce of a deep green paste, contained in a small screw cap jar. Price 10 cents. Apparently contains methyl, or methylaniline, green. A coal tar color.

No. 12. Labeled: "Standard color pastes, fruit red." Manufactured in Boston. Consists of about one quarter of an ounce of a brownish-red paste in a small screw cap jar. Price 10 cents. Apparently contains an azo color, perhaps crystal ponceau 6 R. A coal tar color.

No. 13. Labeled: "Pure extract pistache." Manufactured in Binghamton, N. Y. Consists of about two ounces of a deep bluish-green liquid, contained in a flat glass bottle. Price 25 cents. Apparently contains malachite, or benzaldehyde, green. An aniline color.

No. 14. Labeled: "Pure food colors, raspberry red." Manufactured in Little Falls, N. Y. Consists of about one ounce of a bright red liquid in a square glass bottle. Price 10 cents. Apparently contains iodeosin. A coal tar color.

No. 15. Labeled: "Pure food colors, grape green." Manufactured in Little Falls, N. Y. Consists of about one ounce of a deep green liquid in a square glass bottle. Price 10 cents. Apparently contains an aniline green.

No. 16. Labeled: "Pure food colors, plum purple." Manufactured in Little Falls, N. Y. Consists of about one ounce of a deep blue liquid, in a square glass bottle. Price 10 cents. Apparently contains water, or soluble, blue. A coal tar color.

No. 17. Labeled: "Pure food colors, lemon yellow." Manufactured in Little Falls, N. Y. Consists of about one ounce of a brownish-yellow liquid, becoming yellow on dilution, in a square glass bottle. Price 10 cents. Apparently contains tartrazin. A coal tar color.

No. 18. Labeled: "Pure food colors, orange gold." Manufactured in Little Falls, N. Y. Consists of about one ounce of a reddish-brown liquid, which becomes orange and yellow on dilution, in a square glass bottle. Price 10 cents. Apparently contains an azo yellow, or tropaeolin, possibly resorcin yellow (chrysoin), or methyl-orange. A coal tar color.

No. 19. Labeled: "Pure food colors, berry blue." Manufactured in Little Falls, N. Y. Consists of about one ounce of a deep blue liquid in a square glass bottle. Price 10 cents. Apparently contains either alkali or water blue. A coal tar color.

No. 20. Labeled: "Improved butter color." Manufactured in Burlington, Vt. Consists of about four ounces of a deep orange-red oily liquid, in a round glass bottle. Price 25 cents. Apparently consists of an oily solution of butter-yellow (dimethylamidoazobenzene). A coal tar color.

No. 21. Labeled: "Perfected butter color." Manufactured in Burlington, Vt. Consists of about two and one half ounces of a deep orange-brown liquid, with an ammoniacal odor, contained in a round glass bottle. Price 25 cents. Color due to annatto.

No. 22. Labeled: "Orange butter color." Manufactured in Potsdam, N. Y. Consists of about four ounces of a deep orange-brown oily liquid, contined in an oval glass bottle. Price 25 cents. Consists of an oily solution of annatto.

No. 23. Labeled: "Danish butter color." Manufactured in Little Falls, N. Y. Consists of about four ounces of a deep orange-brown oily liquid contained in a round glass bottle. Price 25 cents. Consists of an oily solution of annatto.

No. 24. Labeled: "Butter color, the latest and the best." Manufactured in New York. Consists of about four ounces of a deep red oily liquid contained in a round glass bottle. Price 25 cents. Consists of an oily solution of annatto.

No. 25. "Standard color pastes, chestnut." Manufactured in Boston. Consists of about one quarter of an ounce of a dark colored solid, probably remaining from the drying of a paste, contained in a small screw cap jar. Price 10 cents. Color seemingly due to some vegetable extract the nature of which was not determined.

Without expressing a positive opinion as to the effect upon health of the particular colors present in the above described samples it may be said that the preparations of caramel and annatto are of course entirely unobjectionable, and that, of the coal tar colors present in the other samples, none can, in my opinion, be classed as poisonous, nor even harmful.

Respectfully submitted.

WILLIS G. TUCKER
Director

To the foregoing report the following memorandum was attached:

POSSIBLE LEGISLATION.

It may perhaps be not improper for me to add a word as to legislation, such as has been proposed or might be enacted. Four courses suggest themselves:

(1) The employment of all artificial colors in food articles may be forbidden. Such a measure would, in my opinion, be unwise, unjustifiable and unnecessary, and I do not think that it ought to be considered.

(2) The use of certain colors deemed objectionable may be forbidden. This plan, at first sight, appears to be a satisfactory solution of the problem and a desirable measure to adopt, but it is not free from objectionable features, and these, in my opinion, render it impracticable. For, if the use of certain colors is specifically forbidden, it would seem to follow that all other colors not forbidden may be employed. Hence, such a list must be complete and free from error, and I do not deem it possible to make such a catalogue. New colors are being constantly introduced and these would have to be provided for by frequent amendment, or regulation, and there would therefore be necessity for constant revision of the list. No person is competent to make such a list, and no board of experts would agree upon it.

(3) Manufacturers of food colors may be required to state upon the packages containing their goods the composition of the article. This course has been proposed for various articles like proprietary medicines, and at various times, but I believe that such a law would be declared unconstitutional by the courts if enacted. The Minnesota legislature last winter enacted a law requiring manufacturers of baking powders to mark their goods with a label having printed on it not only the name and residence of the manufacturer but also the ingredients of the powder. According to a statement recently published, it appears that a dealer was convicted of offering for sale a can of baking powder that was not labeled in conformity with the new law, and appealed from the judgment against him. Judge Lochren of the United States circuit court is reported to have decided that "the act could not in any way be regarded as an inspection

measure, and that it was an unreasonable exercise of the police power on the part of the state, and if it were carried to its logical conclusion by the adoption, by other state legislatures, of similar measures, it would amount not only to a burdensome restriction of commerce between the states, but practically to a prohibition of such commerce; therefore, the law was unconstitutional in both aspects."

(4) Our present laws may be deemed sufficient to cover the case of food colors and left without addition or amendment. As above stated, existing provisions of the Public health law and Agricultural law seem to cover the ground, and the provisions of the former law are essentially the same as of the English law. The burden of responsibility is placed, where it belongs, upon the maker, vender, or user of such articles, and if harmful or poisonous constitutents are employed he is liable to a fine of one hundred dollars for each violation of the law. In my opinion few manufacturers would run the risk of the loss or injury to their business which would be sure to result from conviction, or even exposure, in such a case. Certainly the motives prompting to such a course are few since harmless colors are so numerous that there is little temptation to employ those which are poisonous.

The instances in which poisonous colors, or other ingredients, are actually added to food articles are very rare and it would seem a wise course to disregard the sensational and exaggerated statements of over-zealous or ignorant persons rather than cumber our statute books with unnecessary additions to our laws. In this particular case our present laws would seem to be sufficient.

Feb. 19. Received from Herschel Roberts, Albany, three samples of water from Watervliet by order of C. W. Adams, engaged in an investigation of the public water supply of Watervliet. Ordered examined Feb. 21. Analyzed and reported upon Feb. 26.

March 8. Received from Dr. A. W. Smallman, health officer, Ellicottville, a sample of buckwheat flour. Ordered examined March 9.

March 8. Received sample of water from J. G. Graham through office of Board. Ordered examined March 8. Analyzed and reported upon March 10.

March 12. Received sample of water from Dr. G. Herbert Brown, health officer, Highland Falls. Ordered examined March 8. Analyzed and reported upon March 17.

March 29. Received sample of water from Dr. E. L. Hanmer, health officer, Middletown. Ordered examined March 28. Analyzed and reported upon March 31.

April 9. Received through office of the Board samples of tea and coffee submitted by the state board of charities for examination and subsequently reported on same as follows:

B. T. SMELZER, *Secretary State Board of Health, Albany:* ,

Dear Sir—Referring to your communication of April 7th in which was enclosed a small sample of ground coffee and a small sample of tea, said to have been "received from the state board of charities as having been procured from the stores of the Onondaga county almshouse, and sent to this Board for examination to determine whether they contain any ingredients deleterious or unfit for use," I beg to report that the sample of coffee contains much foreign matter consisting of roasted peas or beans and other starchy matter, and that the sample of tea consists of tea-dust or siftings of low grade. I do not think, however, that either of the samples contains "any ingredients deleterious or unfit for use."

Very respectfully yours
WILLIS G. TUCKER
Director

May 7. Received sample of water from Dr. P. D. Carpenter, health officer, Pittsford. Ordered examined May 7. Analyzed and reported on May 16.

May 9. Received sample of water from Dr. F. F. Comstock, health officer, Ilion. Ordered examined May 9. Analyzed and reported on May 16.

May 17. Received sample of water from "School authorities," Shortsville. Ordered examined May 17. Analyzed and reported on May 25.

May 22. Received sample of water from A. C. Robinson, president board of health, Penn Yan. Ordered examined June 4. Analyzed and reported on June 7.

June 14. Received sample of water from E. C. Buchenau, secretary board of health, Clarkstown. Ordered examined June 14. Analyzed and reported on June 21.

June 18. Received three samples of water from Dr. H. B. Potter, La Fayetteville. Ordered examined June 19. Analyzed and reported on June 21.

June 25. Received two samples of water from Dr. T. J. Cleland, New Lebanon. Ordered examined June 27. Analyzed and reported on July 6.

June 25-July 1. By advice of Board received from the Western house of refuge for women at Albion, seven samples each of sewage and of effluent from a purification plant installed at that institution, one sample each of sewage and of effluent being forwarded to me each day for a period of one week. The samples were examined and report upon same made as follows:

ALBANY, July 9, 1900

B. T. SMELZER, *Secretary New York State Board of Health, Albany:*

Dear Sir—I enclose herewith reports, in duplicate, giving results of the analyses of seven samples of sewage and seven samples of effluent, received from the Western house of refuge for women, Albion, N. Y. The samples were sent by Prof. O. H. Landreth, C.E., or under his direction, and in conformity with arrangements made by him, and one sample each of sewage and of effluent was forwarded by express each day and received by us about eight o'clock on the succeeding morning from June 25 to July 1, both inclusive. The analytical determinations of all constituents liable to change were promptly made and completed in each case upon the day that the samples were received.

This work has been done in conformity with your advice in the matter, and I understand that the analyses were desired for the purpose of aiding in the decision as to the efficiency of the purification plant recently installed, and for the information of the board of managers of the Western house of refuge, and of the state authorities by whom the bills for construction are to be audited and paid.

Yours very respectfully,

WILLIS G. TUCKER

Director

SEWAGES

(Parts per 100,000)

	Numbers							Averages
	1	2	3	4	5	6	7	
Date received	June 25	June 26	June 27	June 28	June 29	June 30	July 1	....
Hour received	8:55 a. m.	7:50 a. m.	8:30 a. m.	8:30 a. m.	8:15 a. m.	8:15 a. m.	8:15 a. m.	....
Temperature when received	76° F.	68° F.	74° F.	76° F.	74° F.	64° F.	64° F.	....
Turbidity	Opalescent							....
Sediment	Considerable							....
Chlorine	15.60	10.20	15.00	12.50	16.50	14.00	12.50	13.76
Free ammonia	4.1800	2.5750	2.8100	2.3800	3.2350	2.8600	3.1500	2.9557
Albuminoid ammonia, dissolved	0.2840	0.2280	0.2000	0.2840	0.2860	0.2660	0.3200	0.2668
Albuminoid ammonia, suspended	0.2520	0.2180	0.1660	0.0660	0.9140	0.2880	0.3400	0.3206
Nitrogen as nitrites	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nitrogen as nitrates	0.0204	0.0152	0.0192	0.0280	0.0220	0.0180	0.0200	0.0204
Oxygen consumed	5.04	6.40	7.70	5.48	13.48	7.10	8.90	7.73
Total solids	81.20	71.80	86.20	69.20	154.20	84.20	87.20	90.57
Dissolved solids	61.80	54.60	65.60	55.60	69.80	64.20	59.40	61.57
Suspended solids	19.40	17.20	20.60	13.60	84.40	20.00	27.80	29.00
Loss on ignition, total solids	39.20	36.80	47.40	36.00	99.80	46.60	51.60	51.06
Loss on ignition, dissolved solids	24.20	24.20	28.20	23.80	33.60	28.20	28.80	27.29
Loss on ignition, suspended solids	15.00	12.60	19.20	12.20	66.20	18.40	22.80	23.77

EFFLUENT

(Parts per 100,000)

	NUMBERS							Averages
	1	2	3	4.	5	6	7	
Date received	June 25	June 26	June 27	June 28	June 29	June 30	July 1	....
Hour received	8:55 a. m.	7:50 a. m.	8:30 a. m.	8:30 a. m.	8:15 a. m.	8:15 a. m.	8:15 a. m.	....
Temperature when received	74° F	69° F.	75° F.	75° F.	74° F.	66° F.	63° F.	....
Color	Brownish							....
Turbidity	Distinct							....
Sediment	Slight							....
Odor at ordinary temperature	Very slight, earthy							....
Odor at 100° F	Slight, earthy							....
Chlorine	10.40	13.60	14.00	13.00	13.00	13.50	13.00	12.93
Free ammonia	0.0422	0.1120	0.0280	0.0360	0.1036	0.0390	0.0992	0.0656
Albuminoid ammonia	0.0366	0.0590	0.0348	0.0600	0.0400	0.0500	0.0500	0.0493
Nitrogen as nitrites	0.0218	0.0476	0.0435	0.0312	0.0476	0.0342	0.0485	0.0392
Nitrogen as nitrates	1.8868	2.1739	2.1739	1.9231	2.0833	1.6667	1.3889	1.8995
Oxygen consumed	0.76	0.74	0.90	0.72	1.00	0.94	0.88	0.85
Total solids	61.20	60.60	59.20	60.60	63.80	60.60	55.60	60.23
Loss on ignition	6.40	6.20	7.60	11.20	10.60	8.80	6.80	8.23

SEWAGES

(Parts per 100,000)

	Numbers							Averages
	1	2	3	4	5	6	7	
Date received	June 25	June 26	June 27	June 28	June 29	June 30	July 1	....
Hour received	8:55 a. m.	7:50 a. m.	8:30 a. m.	8:30 a. m.	8:15 a. m.	8:15 a. m.	8:15 a. m.	....
Temperature when received	76° F.	68° F.	74° F.	76° F.	74° F.	64° F.	64° F.	....
Turbidity	Opalescent							....
Sediment	Considerable							....
Chlorine	15.60	10.20	15.00	12.50	16.50	14.00	12.50	13.76
Free ammonia	4.1800	2.5750	2.3100	2.3800	3.2350	2.8600	3.1500	2.9557
Albuminoid ammonia, dissolved	0.2840	0.2280	0.2000	0.2840	0.2860	0.2660	0.3200	0.2668
Albuminoid ammonia, suspended	0.2520	0.2180	0.1660	0.0660	0.9140	0.2980	0.3300	0.3206
Nitrogen as nitrites	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Nitrogen as nitrates	0.0204	0.0152	0.0192	0.0280	0.0220	0.0180	0.0200	0.0204
Oxygen consumed	5.04	6.40	7.70	5.48	13.48	7.10	8.90	7.73
Total solids	81.20	71.80	86.20	69.20	154.20	84.20	87.20	90.57
Dissolved solids	61.80	54.60	65.60	55.60	69.80	64.20	59.40	61.57
Suspended solids	19.40	17.20	20.60	13.60	84.40	20.00	27.80	29.00
Loss on ignition, total solids	39.20	36.80	47.40	36.00	99.80	46.60	51.60	51.06
Loss on ignition, dissolved solids	24.20	24.20	28.20	23.80	33.60	28.20	28.80	27.29
Loss on ignition, suspended solids	15.00	12.60	19.20	12.20	66.20	18.40	22.80	23.77

EFFLUENT

(Parts per 100,000)

	Numbers							Averages
	1	2	3	4.	5	6	7	
Date received	June 25	June 26	June 27	June 28	June 29	June 30	July 1	....
Hour received	8:55 a. m.	7:50 a. m.	8:30 a. m.	8:30 a. m.	8:15 a. m.	8:15 a. m.	8:15 a. m.	....
Temperature when received	74° F	69° F.	75° F.	75° F.	74° F.	66° F.	63° F.	....
Color	Brownish							....
Turbidity	Distinct							....
Sediment	Slight							....
Odor at ordinary temperature	Very slight, earthy							....
Odor at 100° F	Slight, earthy							....
Chlorine	10.40	13.60	14.00	13.00	13.00	13.50	13.00	12.93
Free ammonia	0.0422	0.1120	0.0280	0.0360	0.1036	0.0390	0.0992	0.0656
Albuminoid ammonia	0.0366	0.0590	0.0348	0.0800	0.0400	0.0500	0.0500	0.0493
Nitrogen as nitrites	0.0218	0.0476	0.0435	0.0312	0.0476	0.0312	0.0485	0.0388
Nitrogen as nitrates	1.8868	2.1739	2.1739	1.9231	2.0833	1.6667	1.3889	1.8995
Oxygen consumed	0.76	0.74	0.90	0.72	1.00	0.94	0.88	0.85
Total solids	61.20	60.60	59.20	60.60	63.80	60.60	55.60	60.23
Loss on ignition	6.40	6.20	7.60	11.20	10.60	8.80	6.80	8.23

Alpine. Ordered examined Sept. 13, but as sample was contained in a stone jug another sample in glass was requested but not furnished.

Sept. 18. Received sample of water from Dr. F. E. Engelhardt, of department of health, Syracuse. Ordered examined Sept. 19. Analyzed and reported on Sept. 21.

Sept. 25. Received three samples of water from Dr. C. B. Bacon, health officer, Waterloo. Ordered examined Sept. 26. Analyzed and reported on Sept. 28.

Sept. 29. Received sample of water from Dr. H. W. Humphrey, health officer, Adams. Ordered examined Oct. 5. Analyzed and reported on Oct. 8.

Oct. 1. Received sample of water from George Chahoon, Ausable Forks. Ordered examined Oct. 2. Analyzed and reported on Oct. 8.

Oct. 2. Received sample of water from Oneonta water works. Ordered examined Oct. 3. Analyzed and reported on Oct. 8.

Oct. 3. In conformity with instructions received in a communication of Sept. 22 I visited the works of the American tartar company at 9-11 Liberty street, Albany, and took two samples for examination. Reported on same as follows:

ALBANY, *October* 11, 1900

B. T. SMELZER, *Secretary State Board of Health, Albany, N. Y.:*

Dear Sir—Referring to a communication received from the assistant secretary and dated September 22, 1900, enclosing a copy of a letter addressed to the State Board of Health by Briesen & Knauth of New York city under date of September 24, 1900, and referring to the alleged sale of "cream of tartar" by the American tartar company of this city, said by them to be of inferior quality, I would respectfully report that, in conformity with your instructions, I visited the works of the American tartar company at 9-11 Liberty street in this city, on October 3, and asked for a sample of their cream of tartar, which was promptly supplied to me by George Brooks, vice-president of the company. This sample I numbered 10691. In reply to further inquiries Mr. Brooks informed me that his company put up an article under the name of "Royal compound" for bakers' use in conjunction with baking soda, but that this article was neither labeled, branded, advertised nor sold as "cream of tartar." On my request he furnished me with a sample of this article, which I numbered 10692.

On examination I find that sample No. 10691 consists of potassium bi-tartrate, or "cream of tartar" of good quality and having an acidity equivalent to 99.5 per cent of potassium bi-tartrate, and that sample No. 10692 is a mixture of potassium bi-tartrate and other substances, having an acidity equivalent to 99 per cent of potassium bi-tartrate. Obviously this latter article should neither be sold as, nor represented to be, "cream of tartar," and I have no personal knowledge that it is either represented to be, or sold as, such.

Very respectfully yours
WILLIS G. TUCKER
Director

Oct. 12. Received sample of water from Dr. G. W. Clark, health officer, Waterloo. Ordered examined Oct. 12. Analyzed and reported on Oct. 20.

Oct. 15. Received sample of water from George Chahoon, Ausable Forks. Ordered examined Oct. 16. Analyzed and reported on Oct. 20.

Oct. 16. Received sample of water from Dr. J. L. Hanmer, health officer, Middletown. Ordered examined Oct. 16. Analyzed and reported on Oct. 20.

Oct. 30. Received sample of water from Dr. J. L. Hanmer, health officer, Middletown. Ordered examined Dec. 13, and new sample requested but not furnished.

Nov. 7. Received sample of water from Dr. F. A. W. Rivett, health officer, Green Island. Ordered examined Nov. 8. Analyzed and reported on Nov. 12.

Dec. 10. Received sample of water from Clyde river, and of effluent from beet sugar factory at Lyons, through fish, forest and game commission. Ordered examined Dec. 11th and subsequently examined and reported on.

Dec. 27. Received sample of water from P. K. Patterson, Fairfield. Subsequently ordered examined, but sample lost by breakage of container and new sample requested but not furnished.

WATER ANALYSES

During the year 50 samples of drinking water, above described, have been examined. The usual sanitary analysis has been made, including physical properties (color, turbidity, sediment and odor); chlorine in chlorides; free and albuminoid ammonias; nitrites; total solids; loss on ignition, and mineral matter, with such other determinations as may have been deemed necessary in special cases. These results have been sufficient, in most instances, to determine fitness for domestic use. The following instructions have been sent in advance to all senders of samples and, in construing the analytical results, the information furnished as to source, surroundings of same and possible contaminations, has been taken into consideration in deciding upon quality and advising as to use, and this fact may explain some of the conclusions which might otherwise seem to be scarcely justified by the analytical results alone:

CHEMICAL ANALYSIS OF WATERS

STATE BOARD OF HEALTH OF NEW YORK

DIRECTIONS FOR TAKING AND FORWARDING SAMPLES OF WATER

I. Use clean *glass* demijohns of gallon capacity. *Never use stone jugs.*
II. Rinse the demijohns thoroughly several times with the water before filling.
III. Fill with a fair sample of the water to be analyzed, and if dippers, funnels or other vessels are used, see to it that these are clean.
IV. Close with a new and clean cork which should be well tied down with cord. The ends of the cord may be sealed, but top should not be coated with wax.
V. Accompany the sample with description of same, stating source, proximity of houses, stables, privies, cesspools, drains or other sources of possible contamination, and if from well, depth and character of soil. If several samples are sent state whether from same vicinity or same source, and describe fully, stating reasons for selection of the samples. All samples to be properly numbered or otherwise labeled for purpose of identification.
VI. Forward without delay, *prepaying all charges*, to Prof. Willis G. Tucker, Director State Laboratory, Albany Medical College, Albany, N. Y.
VII. Make the addressed tag or marking secure.

BAXTER T. SMELZER, M. D.
Secretary and Executive officer

The reports not having been elsewhere published are appended:

No. 540

(Results are parts in 100,000)

Received from board of health, Waverly; date received, January 4, 1900; source, "from Waverly water supply;" how labeled, as above. Appearance: Color, yellowish green tint; turbidity, decided; sediment, considerable. Odor at 100 degrees F., very slight; chlorine in chlorides, 0.20; free ammonia, 0.0178; albuminoid ammonia, 0.0125; nitrites, none; total solids, 10.20; loss on ignition, 4.40; behavior during ignition, blackened; mineral matter, 5.80; remarks, this water is not of very satisfactory quality for domestic use.

Dated at State Board of Health laboratory, Albany, N. Y., January 9, 1900.

No. 541

(Results are parts in 100,000)

Received from Dr. G. Herbert Brown, health officer, Highland Falls; date received, February 12, 1900; source, well; how labeled, "No. 2." Appearance: Color, greenish yellow; turbidity, slight; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorides, 3.60; free ammonia, 0.4400; albuminoid ammonia, 0.0195; nitrites, present; total solids, 23.80; loss on ignition, 11.40; behavior during ignition, darkened slightly; mineral matter, 12.40; remarks, polluted and entirely unfit for use.

Dated at State Board of Health laboratory, Albany, N. Y., February 20, 1900.

No. 542

(Results are parts in 100,000)

Received from Herschel Roberts, Albany; date received, February 19, 1900; source, Watervliet water supply; how labeled, "No. 1." Appearance: Color, yellowish; turbidity, opalescent, permanently turbid; sediment, considerable. Odor at 100 degrees F., aromatic and peculiar; chlorine in chlorides, 3.7; free ammonia, 0.2120; albuminoid ammonia, 0.0270; nitrites, present; total solids, 19.60; loss on ignition, 5.20; behavior during ignition, blackened, some odor; mineral matter, 14.40; remarks, unsatisfactory and unfit for domestic use in this condition.

Dated at State Board of Health laboratory, Albany, N. Y., February 26, 1900.

No. 543

(Results are parts in 100,000)

Received from Herschel Roberts, Albany; date received, February 19, 1900; source, Watervliet water supply; how labeled, "No.

2." Appearance: Color, smoky tint; turbidity, opalescent, permanently turbid; sediment, considerable. Odor at 100 degrees F., aromatic and peculiar; chlorine in chlorides, 0.20; free ammonia, 0.0053; albuminoid ammonia, 0.0295; nitrites, none; total solids, 13.20; loss on ignition, 3.40; behavior during ignition, blackened, some odor; mineral matter, 9.80; remarks, color, appearance and odor, unsatisfactory, and albuminoid ammonia high, but, in other respects, much better than No. 542, and not very different, though somewhat inferior, to No. 544.

Dated at State Board of Health laboratory, Albany, N. Y., February 26, 1900.

No. 544

(Results are parts in 100,000)

Received from Herschel Roberts, Albany; date received, February 19, 1900; source, Watervliet water supply; how labeled, "No. 3." Appearance: Color, yellowish; turbidity, opalescent, permanently turbid; sediment, considerable. Odor at 100 degrees F., slight; chlorine in chlorides, 0.25; free ammonia, 0.0030; albuminoid ammonia, 0.0260; nitrites, none; total solids, 11.80; loss on ignition, 3.20; behavior during ignition, blackened, some odor; mineral matter, 8.60; remarks, color and appearance unsatisfactory, but in other respects, much better than No. 542, and not very different, though in most respects superior to No. 543.

Dated at State Board of Health laboratory, Albany, N. Y., February 26, 1900.

No. 545

(Results are parts in 100,000)

Received from James G. Graham; date received, March 8, 1900; source, not stated; how labeled, "From Hon. James G. Graham." Appearance: Color, almost colorless; turbidity, none; sediment, none. Odor at 100 degrees F., none; chlorine in chlorides, 0.3; free ammonia, 0.0020; albuminoid ammonia, 0.0040; nitrites, none; total solids, 20.80; loss on ignition, 6.40; behavior during ignition, no change; mineral matter, 14.40; remarks, excellent quality.

Dated at State Board of Health laboratory, Albany, N. Y., March 10, 1900.

No. 546

(Results are parts in 100,000)

Received from Dr. G. Herbert Brown, health officer, Highland Falls; date received, March 12, 1900; source, well; how labelled, "No. 2." Appearance: Color, light greenish; turbidity, slight; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorides, 0.60; free ammonia, 0.0015; albuminoid ammonia, 0.0075; nitrites, none; total solids, 7.60; loss on ignition, 2.80; behavior during ignition, darkened; mineral matter, 4.80; remarks, satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., March 17, 1900.

No. 547

(Results are parts in 100,000)

Received from Dr. J. L. Hanmer, health officer, Middletown; date received, March 29, 1900; source, not stated; how labelled, "From Middletown, N. Y." Appearance: Color, greenish yellow tint; turbidity, distinct; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorides, 1.00; free ammonia, 0.0860; albuminoid ammonia, 0.0175; nitrites, present; total solids, 12.80; loss on ignition, 5.20; behavior during ignition, blackened, slight odor; mineral matter, 7.60; remarks, unfit for domestic use.

Dated at State Board of Health laboratory, Albany, N. Y., March 31, 1900.

No. 548

(Results are parts in 100,000)

Received from Dr. P. D. Carpenter, health officer, Pittsford; date received, May 7, 1900; source, well; how labelled, "From Pittsford, N. Y." Appearance: Color, greenish yellow tint; turbidity, very slight; sediment, considerable. Odor at 100 degrees F., earthy; chlorine in chlorides, 13.10; free ammonia, 0.0050; albuminoid ammonia, 0.0060; nitrites, none; total solids, 89.60; loss on ignition, 24.80; behavior during ignition, darkened slightly; mineral matter, 64.80; remarks, not satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., May 16, 1900.

No. 549

(Results are parts in 100,000)

Received from Dr. F. F. Comstock, health officer, Ilion; date received, May 9, 1900; source, well; how labelled, "Mrs. W. C., 1900." Appearance: Color, light greenish; turbidity, none; sediment, trifling; odor at 100 degrees F., none; chlorine in chlorides, 1.30; free ammonia, 0.0083; albuminoid ammonia, 0.0075; nitrites, none; total solids, 48.20; loss on ignition, 11.60; behavior during ignition, no change; mineral matter, 36.60; remarks, not satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., May 16, 1900.

No. 550

(Results are parts in 100,000)

Received from public school authorities, Shortsville; date received, May 17, 1900; source, "well of Shortsville high school;" how labeled, as above. Appearance: Color, light greenish yellow; turbidity, none; sediment, trifling. Odor at 100 degrees F., slight; chlorine in chlorides, 1.60; free ammonia, 0.0040; albuminoid ammonia, 0.0065; nitrites, trace; total solids, 44.80; loss on ignition, 10.60; behavior during ignition, no change; mineral matter, 34.20; remarks, not entirely satisfactory.

Dated at State Board of Health laboratory, Albany, N. Y., May 25, 1900.

No. 551

(Results are parts in 100,000)

Received from Albert C. Robinson, president board of health, Penn Yan; date received, May 22, 1900; source, well; how labeled, "From Penn Yan, N. Y." Appearance: Color, greenish yellow tint; turbidity, slight; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorides, 1.00; free ammonia, 0.0060; albuminoid 'ammonia, 0.0045; nitrites, present; total solids, 47.80; loss on ignition, 9.40; behavior during ignition, no change; mineral matter, 38.40; remarks, fair quality.

Dated at State Board of Health laboratory, Albany, N. Y., June 7, 1900.

No. 552

(Results are parts in 100,000)

Received from Edward C. Buchenau, secretary board of health, Clarkstown; date received, June 14, 1900; source, well; how labelled, "From Board of Health, Clarkstown, N. Y." Appearance: Color, light greenish tint; turbidity, none; sediment, none. Odor at 100 degrees F., none; chlorine in chlorides, 0.40; free ammonia, 0.0045; albuminoid ammonia, 0.0025; nitrites, none; total solids, 5.80; loss on ignition, 2.60; behavior during ignition, darkened slightly; mineral matter, 3.20; remarks, satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., June 21, 1900.

No. 553

(Results are parts in 100,000)

Received from Dr. H. B. Potter, La Fargeville, date received, June 18, 1900; source, not stated; how labelled, "No. 1." Appearance: Color, greenish yellow tint; turbidity, very slight; sediment, very slight. Odor at 100 degrees F., none; chlorine in chlorides, 0.50; free ammonia, 0.0035; albuminoid ammonia, 0.0070; nitrites, faint trace; total solids, 14.60; loss on ignition, 3.80; behavior during ignition, darkened; mineral matter, 10.80; remarks, fairly satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., June 21, 1900.

No. 554

(Results are parts in 100,000)

Received from Dr. H. B. Potter, La Fargeville; date received, June 18, 1900; source, not stated; how labelled, "No. 2." Appearance: Color, greenish yellow tint; turbidity, very slight; sediment, very slight. Odor at 100 degrees F., none; chlorine in chlorides, 0.55; free ammonia, 0.0035; albuminoid ammonia, 0.0062; nitrites, faint trace; total solids, 14.20; loss on ignition, 4.40; behavior during ignition, darkened; mineral matter, 9.80; remarks, fairly satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., June 21, 1900.

No. 555

(Results are parts in 100,000)

Received from Dr. H. B. Potter, La Fargeville; date received, June 18, 1900; source, not stated; how labelled, "No. 3." Appearance: Color, greenish yellow tint; turbidity, none; sediment, trifling. Odor at 100 degrees F., none; chlorine in chlorides, 0.50; free ammonia, 0.0020; albuminoid ammonia, 0.0060; nitrites, none; total solids, 15.00; loss on ignition, 4.20; behavior during ignition, darkened; mineral matter, 10.80; remarks, satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., June 21, 1900.

No. 556

(Results are parts in 100,000)

Received from Dr. T. J. Cleland, health officer, New Lebanon; date received, June 25, 1900, source, spring; how labelled, "Water, Michael Lynch." Appearance: Color, light greenish tint; turbidity, none; sediment, trifling. Odor at 100 degrees F., none; chlorine in chlorides, 0.15; free ammonia, 0.0020; albuminoid ammonia, 0.0026; nitrites, none; total solids, 3.40; loss on ignition, 0.40; behavior during ignition, no change; mineral matter, 3.00; remarks, good quality.

Dated at State Board of Health laboratory, Albany, N. Y., July 6, 1900.

No. 557

(Results are parts in 100,000)

Received from Dr. T. J. Cleland, health officer, New Lebanon; date received, June 25, 1900; source, well; how labelled, "Michael Lynch." Appearance: Color, light greenish tint; turbidity, none; sediment, trifling. Odor at 100 degrees F., none; chlorine in chlorides, 1.00; free ammonia, 0.0000; albuminoid ammonia, 0.0035; nitrites, faint trace; total solids, 15.40; loss on ignition, 2.80; behavior during ignition, darkened slightly; mineral matter, 12.60; remarks, this water is of fairly satisfactory quality, but No. 556 is to be preferred and, under circumstances stated by Dr. Cleland, I would advise use of the spring water, and that the use of this well-water be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., July 6, 1900.

No. 558

(Results are parts in 100,000)

Received from Dr. W. J. Carr, health officer, Newburgh; date received, July 2, 1900; source, well; how labelled, "From William J. Carr, M. D., Newburgh." Appearance: Color, light greenish yellow tint; turbidity, none; sediment, none. Odor at 100 degrees F., none; chlorine in chlorides, 11.70; free ammonia, 0.0000; albuminoid ammonia, 0.0055; nitrites, trace; total solids, 91.80; loss on ignition, 22.80; behavior during ignition, darkened slightly; mineral matter, 69.00; remarks, total solids in this water high and it is not of very satisfactory quality for domestic use. If a better and softer water is procurable would advise that the use of this water be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., July 6, 1900.

No. 559

(Results are parts in 100,000)

Received from Dr. James S. McKay, health officer, Potsdam; date received, July 24, 1900; source, well in cellar; how labelled, "Potsdam, N. Y." Appearance: Color, none; turbidity, none; sediment, none. Odor at 100 degrees F., none; chlorine in chlorides, 4.10; free ammonia, 0.0013; albuminoid ammonia, 0.0048; nitrites, none; total solids, 52.80; loss on ignition, 19.40; behavior during ignition, no change; mineral matter, 33.40; remarks, chlorine and solids rather high; otherwise of good quality.

Dated at State Board of Health laboratory, Albany, N. Y., August 1, 1900.

No. 560

(Results are parts in 100,000)

Received from Dr. F. A. Palmer, health officer, Mechanicville; date received, July 27, 1900; source, hydrant water, Mechanicville; how labelled, "Dr. F. A. Palmer, Mechanicville, N. Y." Appearance: Color, brownish tint; turbidity, opalescent; sediment, considerable. Odor at 100 degrees F., very disagreeable; chlorine in chlorides, 0.15; free ammonia, 0.1454; albuminoid ammonia, 0.0500; nitrites, none; total solids, 16.40; loss on ignition, 6.60; behavior during ignition, blackened, strong odor; mineral matter, 9.80; remarks, very unsatisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., August 3, 1900.

No. 567

(Results are parts in 100,000)

Received from Dr. Wm. Zoller, health officer, Fort Plain; date received, August 18, 1900; source, not stated; how labelled, "No. 2." Appearance: Color, greenish; turbidity, decided; sediment, considerable. Odor at 100 degrees F., slight; chlorine in chlorides, 0.15; free ammonia, 0.0013; albuminoid ammonia, 0.0075; nitrites, none; total solids, 11.60; loss on ignition, 4.20; behavior during ignition, darkened; mineral matter, 7.40; remarks, satsfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., August 22, 1900.

No. 568

(Results are parts in 100,000)

Received from Dr. Wm. Zoller, health officer, Fort Plain; date received, August 18, 1900; source, not stated; how labelled, "No. 3." Appearance: Color, greenish; turbidity, very slight; sediment, very slight. Odor at 100 degrees F., slight; chlorine in chlorides, 0.15; free ammonia, 0.0085; albuminoid ammonia, 0.0102; nitrites, faint trace; total solids, 12.60; loss on ignition, 4.40; behavior during ignition, darkened; mineral matter, 8.20; remarks, ammonias rather high and trace of nitrites present but otherwise of fair quality; inferior to Nos. 566 and 567.

Dated at State Board of Health laboratory, Albany, N. Y., August 22, 1900.

No. 569

(Results are parts in 100,000)

Received from Dr. J. L. Hanmer, health officer, Middletown; date received, August 20, 1900; source, well; how labelled, "Well water, B." Appearance: Color, light greenish tint; turbidity, very slight; sediment, trifling. Odor at 100 degrees F., slight; chlorine in chlorides, 6.10; free ammonia, 0.0055; albuminoid ammonia, 0.0042; nitrites, present; total solids, 50.20; loss on ignition, 16.40; behavior during ignition, darkened slightly; mineral matter, 33.80; remarks, unsatisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., August 28, 1900.

No. 570

(Results are parts in 100,000)

Received from George I. Lincoln, superintendent Thomas asylum, Iroquois; date received, August 7, 1900; source, "supply used by the asylum;" how labelled, "Spring." Appearance: Color, light greenish tint; turbidity, none; sediment, trifling. Odor at 100 degrees F., none; chlorine in chlorides, 0.20; free ammonia, 0.0005; albuminoid ammonia, 0.00065; nitrites, present; total solids, 20.40; loss on ignition, 2.80; behavior during ignition, darkened very slightly; mineral matter, 17.60; remarks, aside from traces of nitrites this water is of quite satisfactory quality for domestic use.

Dated at State Board of Health laboratory, Albany, N. Y., September 5, 1900.

No. 571

(Results are parts in 100,000)

Received from George I. Lincoln, superintendent Thomas asylum, Iroquois; date received, August 7, 1900; source, "supply used by the asylum;" how labelled, "Artesian well." Appearance: Color, yellowish green tint; turbidity, decided; sediment, considerable. Odor at 100 degrees F., very slight; chlorine in chlorides, 1.40; free ammonia, 0.0245; albuminoid ammonia, 0.0045; nitrites, none; total solids, 23.40; loss on ignition, 3.80; behavior during ignition, darkened slightly; mineral matter, 19.60; remarks, for a deep well water this is of fairly satisfactory quality. Its present appearance is inferior to that of No. 570. The amount of mineral matter present is not high for such a water and it may be used for most domestic purposes with fairly satisfactory results The free ammonia is very high but in deep well waters this is not necessarily indicative of harmful pollution.

Dated at State Board of Health laboratory, Albany, N. Y., September 5, 1900.

No. 572

(Results are parts in 100,000)

Received from Dr. W. B. Melick, health officer, Fort Edward; date received, August 21, 1900; source, not stated beyond label; how labelled, "L. Resv." Appearance: Color, greenish tint; turbidity, distinct; sediment, slight. Odor at 100 degrees F., very slight; chlorine in chlorides, 0.20; free ammonia, none; albuminoid ammonia, 0.0105; nitrites, none; total solids, 9.80; loss on ignition, 8.20; behavior during ignition, blackened, odor of burnt sugar; mineral matter, 1.60; remarks, this water was contaminated by syrup which had been contained in the jug, which fact was not discovered until the analysis had been nearly completed, but it does not seem to have materially affected the results excepting total solids, loss and behavior on ignition. The sample should have been sent, in conformity with directions, in a new and clean glass container. The water may be passed as of satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., September 5, 1900.

No. 573

(Results are parts in 100,000)

Received from Dr. W. B. Melick, health officer, Fort Edward; date received, August 21, 1900; source, not stated beyond label; how labelled, "Water mains." Appearance: Color, pink; turbidity, decided; sediment, considerable. Odor at 100 degrees F., very slight (of berries); chlorine in chlodides, 0.20; free ammonia, 0.0023; albuminoid ammonia, 0.0088; nitrites, none; total solids, 19.20; loss on ignition, 16.80; behavior during ignition, blackened, ordor of burnt sugar; mineral matter, 2.40; remarks, this water like previous sample was contaminated by syrup which had been contained in the jug, but the results, aside from appearance, total solids and loss and behavior on ignition, do not seem to have been materially affected and the water may be passed as of satisfactory quality. A third sample which accompanied these was entirely unfit for examination.

Dated at State Board of Health laboratory, Albany, N. Y., September 5, 1900.

No. 574

(Results are parts in 100,000)

Received from Dr. E. A. Brown, deputy health officer, Troy; date received, August 23, 1900; source, Wynantskill creek; how labelled, "Taken from Wynantskill creek." Color, greenish yellow tint; turbidity, slight; hardness, equivalent to 5.29 parts, calcium carbonate; all salinity, equivalent to 4.50 parts, calcium carbonate; total solids, 10.80; suspended solids, 1.20.

Dated at State Board of Health laboratory, Albany, N. Y., September 1, 1900.

No. 575

(Results are parts in 100,000)

Received from George Chahoon, Ausable Forks; date received, August 27, 1900; source, "west branch of Ausable River above pulp mill;" how labelled, "Sample A." Appearance: Color, decided greenish-yellow tint; turbidity, very slight; sediment, slight; odor at 100 degrees F., none; chlorine in chlorides, 0.15; free ammonia, 0.0110; albuminoid ammonia, 0.0100; nitrites, none; total solids, 4.40; loss on ignition, 1.80; behavior during ignition, darkened; mineral matter, 2.60; remarks, aside from the ammonias which are rather high this water is of satisfactory quality, showing little evidence of pollution.

Dated at State Board of Health laboratory, Albany, N. Y., September 5, 1900.

No. 576

(Results are parts in 100,000)

Received from George Chahoon, Ausable Forks; date received, August 27, 1900; source "Butternut pond at outlet;" how labelled, "Sample B." Appearance: Color, light greenish-yellow tint; turbidity, very slight; sediment, slight. Odor at 100 degrees F., none; chlorine in chlorides, 0.15; free ammonia, 0.0080; albuminoid ammonia, 0.0167; nitrites, none; total solids, 5.60; loss on ignition, 2.40; behavior during ignition, darkened; mineral matter, 3.20; remarks, this water is not very different from sample No. 575; the ammonias are rather high, but aside from this, the water is of satisfactory quality showing little evidence of pollution.

Dated at State Board of Health laboratory, Albany, N. Y., September 5, 1900.

No. 577

(Results are parts in 100,000)

Received from Dr. Edward Torrey, health officer, Allegany; date received, August 27, 1900; source, well; how labelled, "Water from well in Allegany, N. Y." Appearance: Color, light greenish tint; turbidity, very slight; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorides, 2.30; free ammonia, 0.0013; albuminoid ammonia, 0.0013; nitrites, present; total solids, 27.20; loss on ignition, 12.40; behavior during ignition,

darkened very slightly; mineral matter, 14.80; remarks, results not satisfactory and under circumstances stated I would recommend that the use of this water for domestic purposes be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y, September 5, 1900.

No. 578

(Results are parts in 100,000)

Received from Dr. A. B. Santry, health officer, Little Falls; date received. September 11, 1900; source, "City water;" how labelled, "Water from city supply of Little Falls, N. Y." Appearance: Color, greenish yellow tint; turbidity, very slight; sediment, very slight. Odor at 100 degrees F., very slight; chlorine in chlorides, 0.20; free ammonia, 0.0025; albuminoid ammonia, 0.0112; nitrites, none; total solids, 10.40; loss on ignition, 4.20; behavior during ignition, blackened; mineral matter, 6.20; remarks, fairly satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., September 17, 1900.

No. 579

(Results are parts in 100,000)

Received from Dr. F. E. Englehardt, department of health, Syracuse; date received, September 18, 1900; source, Wilkinson reservoir; how labelled, "From Syracuse, N. Y." Appearance: Color, light greenish yellow tint; turbidity, opalescent; sediment, considerable. Odor at 100 degrees F., decided; chlorine in chlorides, 0.20; free ammonia, 0.0025; albuminoid ammonia, 0.0180; nitrites, none; total solids, 34.80; loss on ignition, 10.40; behavior during ignition, darkened slightly; mineral matter, 24.40; remarks, appearance and odor not good and albuminoid ammonia rather high, but otherwise of fairly good quality.

Dated at State Board of Health laboratory, Albany, N. Y., September 21, 1900.

No. 580

(Results are parts in 100,000)

Received from Dr. C. B. Bacon, health officer, Waterloo, N. Y.; date received, September 25, 1900; source, well; how labelled, "De Witt house." Appearance: Color, light greenish tint; turbidity, none; sediment, trifling. Odor at 100 degrees F., very slight; chlorine in chloride, 4.70; free ammonia, 0.0011; albuminoid ammonia, 0.1011; nitrites, none; total solids, 106.60; loss on ignition, 35.80; behavior during ignition, darkened slightly; mineral matter, 70.80; remarks, quality not satisfactory and under circumstances stated would advise that use for domestic purposes be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., September 28, 1900.

No. 581

(Results are parts in 100,000)

Received from Dr. C. B. Bacon, health officer, Waterloo; date received, September 25, 1900; source, well; how labelled, "Lathey well." Appearance: Color, light greenish tint; turbidity, slight; sediment, very slight. Odor at 100 degrees F., very slight; chlorine in chlorides, 8.10; free ammonia, 0.0028; albuminoid ammonia, 0.0036; nitrites, none; total solids, 146.20; loss on ignition, 33.60; behavior during ignition, no change; mineral matter, 112.60; remarks, quality not satisfactory and under circumstances stated would advise that use for domestic purposes be discontinued.

Dated at State Board of Health laboratory, Albany, N. Y., September 28, 1900.

No. 582

(Results are parts in 100,000)

Received from Dr. C. B. Bacon, health officer, Waterloo; date received, September 25, 1900; source, "City water;" how labelled, as above. Appearance: Color, light greenish yellow tint; turbidity, very slight; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorqides, 4.30; free ammonia, 0.0017; loss on ignition, 4.20; behavior during ignition, darkened; mineral matter, 16.00; remarks, fairly satisfactory quality.

Dated at State Board of Health laboratory, Albany, N. Y., September 28, 1900.

No. 583

(Results are parts in 100,000)

Received from George Chahoon, Ausable Forks; date received, October 1, 1900; source, "Outlet of Auger pond, near Keeseville"; how labelled, "Sample A." Appearance: Color, greenish; turbidity, decided; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorides, 0.10; free ammonia, 0.0080; albuminoid ammonia, 0.0230; nitrites, faint trace; total solids, 8.20; loss on ignition, 3.80; behavior during ignition, blackened, slight odor; mineral matter; 4.40; remarks, chlorine and total solids low, but ammonias high and trace of nitrites present. Cannot be recommended for domestic use.

Dated at State Board of Health laboratory, Albany, N. Y., October 8, 1900.

No. 584

(Results are parts in 100,000)

Received from Oneonta water company; date received, October 2, 1900; source, Oneonta water-works; how labelled, "From Oneonta water-works." Appearance: Color, greenish tint; turbidity, very slight; sediment, none. Odor at 100 degrees F., slight; chlorine in chlorides, 0.15; free ammonia, trace; albuminoid ammonia, 0.0107; nitrites, none; total solids, 3.60; loss on ignition, 1.80; behavior during ignition, blackened, slight odor; mineral matter, 1.80; remarks, fairly satisfactory quality.

Dated at State Board of Health Laboratory, Albany, N. Y., October 8, 1900.

No. 585

(Results are parts in 100,000)

Received from Dr. H. W. Humphrey, health officer, Adams; date received, September 29, 1900; source, well; how labelled, "From Dr. Humphrey." Appearance: Color, light greenish tint; turbidity, distinct; sediment, slight. Odor at 100 degrees F., none; chlorine in chlorides, 4.50; free ammonia, 0.0028; albuminoid ammonia, 0.0050; nitrites, present; total solids, 53.80; loss on ignition, 18.40; behavior during ignition, darkened very slightly; mineral matter, 35.40; remarks, not entirely satisfactory, and under circumstances stated advise that use for domestic purposes be discontinued, or that condition of well be investigated and that it be thoroughly cleaned if necessary.

Dated at State Board of Health Laboratory, Albany, N. Y., October 8, 1900.

No. 586

(Results are parts in 100,000)

Received from Dr. J. L. Hanmer, health officer, Middletown; date received, October 16, 1900; source, well; how labelled, "From Middletown, N. Y." Appearance: Color, light greenish tint; turbidity, very slight; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorides, 2.90; free ammonia, 0.0205; albuminoid ammonia 0.0085; nitrites, present; total solids; 40.40; loss on ignition, 8.40; behavior during ignition, darkened very slightly; mineral matter, 32; remarks, unsatisfactory quality; advise that use for domestic purposes be discontinued.

Dated at State Board of Health Laboratory, Albany, N. Y., October 20, 1900.

No. 587

(Results are parts in 100,000)

Received from Dr. G. W. Clark, health officer, Waterloo; date received, October 12, 1900; source, not stated; how labelled, "From G. W. Clark." Appearance: Color, light greenish tint; turbidity, very slight; sediment, slight. Odor at 100 degrees F., slight; chlorine in chlorides, 3.30; free ammonia, 0.0050; albuminoid ammonia, 0.0082; nitrites, none; total solids, 20.60; loss on ignition, 5.80; behavior during ignition, darkened slightly; mineral matter, 14.80; remarks, fairly satisfactory quality.

Dated at State Board of Health Laboratory, Albany, N. Y., October 20, 1900.

No. 588

(Results are parts in 100,000)

Received from George Chahoon, Ausable Forks; date received, October 15, 1900; source, "Shaver brook, about two miles above Clintonville;" how labelled, "A." Appearance: Color, greenish yellow tint; turbidity, none; sediment, none. Odor at 100 degrees F., none; chlorine in chlorides, 0.05; free ammonia, 0.0025; albuminoid ammonia, 0.0045; nitrites, none; total solids. 9.20; loss on ignition, 2.60; behavior during ignition, darkened; mineral matter, 6.60; remarks, good quality.

Dated at State Board of Health Laboratory, Albany, N. Y., October 20, 1900.

No. 589

(Results are parts in 100,000)

Received from Dr. F. A. W. Rivet, health officer, Green Island; date received, November 7, 1900; source, "From the Green Island water-works;" how labelled, as above. Appearance: Color, greenish yellow tint; turbidity, slight; sediment, none. Odor at 100 degrees F., very slight; chlorine in chloride, 0.80; free ammonia, 0.2370; albuminoid ammonia, 0.0100; nitrites, trace; total solids, 15.20; loss on ignition, 6.80; behavior during ignition, blackened, disagreeable odor; mineral matter, 8.40; remarks, unsatisfactory quality.

Dated at State Board of Health Laboratory, Albany, N. Y., November 12, 1900.

CONCLUSION

In addition to the above, various other articles of minor importance which have been submitted to me during the year have been examined and reported upon, and many letters of inquiry concerning food and drugs, butter colors, the coloring of wines and fruit juices, manufacturing processes, analytical methods, etc., have been answered and the information supplied or advice given to the writers. The only expense of the work of the laboratory for the year has been the salary of the director, and during the last five years, through lack of funds available for this purpose, the average expenditure for salaries, cost of samples and collection of same, traveling expenses, laboratory fittings, supplies, books and sundries has been $1693.50. For this sum a good deal of necessary and useful work has been done, as past reports it is thought will show, but until such time as special and adequate appropriation is made for providing suitable laboratory facilities and assistance, and for properly carrying on the chemical work of the Board, no extended investigations can be undertaken, and much work must be left undone which ought not to be neglected, and which it is the duty of the Board, under various laws, to perform.

Respectfully submitted.

WILLIS G. TUCKER

Director State Board of Health laboratory

ALBANY, N. Y., *January* 1, 1901

SANITARY CONDITION OF THE STATE

AND

SUMMARY OF MORTALITY REPORTED DURING THE YEAR

Sanitary Condition of the State and Summary of Mortality Reported During the Year

By F. C. Curtis, M. D.

There were 128,468 deaths from all causes reported during the year in the Monthly bulletin; besides which 2,086 death returns were received too late to appear therein, making the total mortality of the state for the year 130,554. With these additions the death rate for the year is 18.3 per 1000 population, estimating the population of the state at 7,110,000. This represents an average longevity of about 55 years.

The following tables show the deaths, as classified in the Monthly bulletin, for the current year and for the nine years preceding, covering the 10 years, 1891–1900, and the mortality, of the sanitary districts into which the state is divided.* It is noted that the number of deaths is greater than in either of the preceding years. The increase above the average of the series is in typhoid fever, measles, acute respiratory diseases, diseases of the digestive, urinary and circulatory systems, cancer, violence and unclassified diseases. There is decrease in acute diarrheal diseases, scarlet fever, diphtheria; also in infancy and old age.

**Maritime district:* Includes New York, Brooklyn, Long Island, Staten Island and Westchester county. *Hudson valley district:* All the counties on either side of the Hudson river, except Westchester, to and including Albany and Rensselaer. *Adirondack and Northern district:* The northern section of the state—the counties of Washington, Warren, Hamilton, Essex, Clinton, Franklin, St. Lawrence, Jefferson and Lewis. *Mohawk valley district:* Schenectady, Schoharie, Saratoga, Montgomery, Fulton, Herkimer and Oneida counties. *Southern tier district:* The seven counties along the southern border of the state. *East central district:* Sullivan, Delaware, Otsego, Madison, Chenango, Onondaga and Cortland counties. *West central district:* Cayuga, Tompkins, Seneca, Schuyler, Ontario, Yates, Livingston, Genesee and Wyoming counties. *Lake Ontario and Western district:* Oswego, Wayne, Monroe, Orleans, Niagara and Erie counties.

TOTALS OF MORTALITY, CLASSIFIED BY CAUSES, FOR 10 YEARS, 1891–1900, AND AVERAGE YEARLY MORTALITY

YEARS	Total number of deaths	Representing average daily death rate of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
1891	123,878	340	42,740	34.5	178	589	1,926	619	4	2,252	1,200	367	825
1892	126,302	345	42,434	33.5	183	649	1,664	613	143	2,177	1,350	477	921
1893	123,908	340	41,643	33.6	180	875	1,685	493	252	1,626	789	366	1,203
1894	118,195	324	41,472	35.0	185	489	1,640	422	308	1,227	900	331	1,020
1895	121,735	336	42,003	34.5	165	546	1,716	409	11	850	1,266	370	1,169
1896	120,683	330	40,136	34.5	156	510	1,542	449	8	759	1,493	340	996
1897	117,078	321	35,771	32.6	140	538	1,351	380	27	841	878	303	825
1898	120,972	331	37,113	30.2	136	695	1,810	404	1	837	838	237	1,155
1899	121,821	333	35,386	29.0	120	702	1,604	248	21	730	756	353	886
1900	128,468	352	39,204	30.5	137	531	1,948	309	14	689	1,333	406	1,020
Average for 10 years	122,304	335	39,790	33.0	160	613	1,689	435	78	1,199	1,080	362	993

TABLE OF MORTALITY CLASSIFIED BY CAUSES, ETC.—(*Concluded*)

YEARS	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
1891	5,072	9,179	20,697	13,445	1,053	8,486	6,473	8,480	13,169	3,028	5,028	6,530	15,371
1892	5,918	9,185	20,432	13,471	1,131	8,920	6,502	9,013	14,009	3,152	5,543	6,385	14,647
1893	5,947	9,056	19,807	13,123	1,054	8,834	6,955	9,042	13,826	3,232	5,295	5,828	14,622
1894	6,592	8,956	15,885	12,824	911	8,745	6,947	8,451	12,948	3,305	5,487	5,497	15,310
1895	4,989	9,055	17,725	13,267	939	7,892	7,449	9,966	11,724	3,534	5,889	5,569	16,380
1896	4,597	8,776	16,820	13,265	972	8,955	7,770	10,486	11,925	3,789	7,022	5,377	14,385
1897	4,115	7.267	16,277	12,641	1,013	8,963	7,866	10,905	12,124	4,131	6,172	5,516	14,950
1898	2,612	8,499	16,350	12,979	920	10,101	8,641	10,511	13,312	4,385	6,520	5,524	14,641
1899	2,786	6,480	17,938	13,412	877	10,163	9,064	10,606	13,177	4,533	6,093	6,098	15,324
1900	3,306	7,959	19,232	13,590	1,136	10,614	9,509	10,676	12,993	4,871	6,714	5,402	16,134
Average for 10 years	4,593	8,441	18,116	13,202	1,000	9,270	7,717	9,814	12,970	3,798	5,976	5,773	15,220

TOTALS OF MORTALITY IN THE SANITARY DISTRICTS FOR THE YEAR

DISTRICTS	Total number of deaths	Representing annual death rate per 1000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
Maritime district	75,989	19.5	26,625	36.3	135	310	760	240	11	479	863	325	616
Hudson valley district	12,432	17.4	2,870	23.0	150	55	350	27	....	41	134	36	120
Adirondack and Northern district	5,430	14.2	1,083	20.0	143	36	152	5	....	23	48	25	24
Mohawk valley district	6,164	15.5	1,375	22.3	139	26	139	5	2	18	67	15	50
Southern tier district	5,918	14.0	1,003	17.0	123	21	141	10	....	28	34	14	42
East central district	5,796	14.0	1,028	17.7	124	22	110	10	....	19	47	22	38
West central district	4,461	14.0	654	14.6	113	13	91	5	....	15	24	6	27
Lake Ontario and Western district	12,278	14.0	3,240	26.3	148	48	205	7	1	66	116	23	103

TOTALS OF MORTALITY IN THE SANITARY DISTRICTS FOR THE YEAR—(*Concluded*)

DISTRICTS	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
Maritime district	2,393	4,292	13,240	8,650	744	6,804	6,115	4,931	6,049	2,449	4,150	1,456	11,112
Hudson valley district	259	843	1,606	1,373	75	857	781	1,276	1,668	476	531	731	1,193
Adirondack and Northern district	74	393	616	539	46	399	318	573	678	234	231	470	546
Mohawk valley district	132	405	713	559	46	479	386	625	798	295	331	453	620
Southern tier district	115	322	648	452	52	448	414	683	794	287	308	544	560
East central district	61	395	583	513	34	470	378	720	760	329	276	474	535
West central district	70	253	418	375	28	346	285	594	658	232	224	415	382
Lake Ontario and Western district	202	1,055	1,408	1,129	111	841	824	1,274	1,588	569	663	859	1,186

RELATIVE URBAN AND RURAL DEATH RATE IN THE SANITARY DISTRICTS

DISTRICTS	Area in square miles	Population per square mile	Percentage city population	Urban death rate *	Rural death rate †
Maritime	2,286	1,535	94.0	20.5	17.0
Hudson valley	5,872	117	44.0	19.0	17.0
Adirondack and Northern	15,080	26	7.5	......	14.0
Mohawk valley	4,731	82	37.5	18.0	14.5
Southern tier	6,545	62	34.0	16.0	13.5
East central	6,555	62	30.0	15.2	14.0
West central	4,746	65	16.0	15.0	14.0
Lake Ontario and Western	4,378	200	68.0	14.2	14.2
Entire state	50,200	136	70.0	19.5	15.5

* Namely, in cities of 25,000 population and over. † In towns and places of less than 25,000 population.

RELATIVE MORTALITY FROM CHIEF CAUSES IN SANITARY DISTRICTS

DISTRICTS	IN EACH 1,000 DEATHS FROM ALL CAUSES THERE WERE FROM—						
	All zymotic diseases	Typhoid fever	Scarlet fever	Diphtheria and croup	Diarrhœal diseases	Consumption	Acute respiratory diseases
Maritime	135	10	6	32	56	114	174
Hudson valley	150	28	4	21	68	110	130
Adirondack and Northern	143	26	4	14	72	100	118
Mohawk valley	139	23	3	20	65	90	115
Southern tier	124	24	5	20	55	76	110
East central	124	20	3	10	68	90	100
West central	113	20	3	15	57	84	94
Lake Ontario and Western	148	17	5	16	86	92	115
Entire state	137	17	5	25	62	106	150

SEASONS

The effect of season on the mortality is shown by these tables which follow. The first gives the mortality of each month, together with the comparative mortality of the preceeding year and the average of the past five years. Succeeding this table is given the mortality of each month for the past 15 years.

TOTALS OF MORTALITY OF THE STATE BY MONTHS

1900	Total number of deaths	Representing annual death rate per 1000 population of—	Deaths under five five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 Death from all causes	Cerebro spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough
January	10,552	18.0	2,788	26.5	94	29	144	17	......	75	154	43	79
February	10,796	18.7	3,142	29.1	107	49	122	18	......	119	206	56	91
March	13,033	20.4	3,574	27.4	93	50	120	23	......	94	202	86	129
April	12,486	20.5	3,376	27.1	86	61	96	23	1	92	191	94	117
May	10,938	17.5	3,160	29.0	93	51	102	28	1	71	161	52	111
June	9,444	15.5	3,101	33.0	120	39	65	26	1	44	120	40	71
July	11,641	19.5	4,728	40.6	235	53	101	17	1	43	92	22	113
August	11,047	18.5	4,223	38.3	237	47	174	37	2	22	49	11	86
September	10,251	16.5	3,760	36.7	220	41	245	41	......	12	21	16	66
October	9,676	16.0	2,864	29.6	146	36	283	37	......	24	24	13	54
November	8,715	15.0	2,178	25.0	110	38	233	26	1	33	32	12	50
December	9,889	16.5	2,310	23.3	105	37	263	16	7	60	81	21	53
Total for the year	128,468	17.8	39,204	30.5	137	531	1,948	309	14	689	1,333	466	1,020
Average for 5 years past	120,457	18.5	37,136	31.0	146	596	1,604	377	14	808	1,045	316	1,007
Total for 1899	121,821	17.3	35,381	29.0	120	702	1,604	248	21	730	756	353	886

TOTALS OF MORTALITY OF THE STATE, BY MONTHS—(*Concluded*)

1900	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
January	352	95	2,100	1,140	121	686	838	968	1,138	382	461	460	1,270
February	352	137	2,402	1,131	107	543	873	866	1,109	396	471	463	1,285
March	342	167	3,137	1,363	160	689	982	1,132	1,301	443	437	591	1,585
April	277	117	2,962	1,302	125	852	860	1,080	1,270	410	469	578	1,509
May	290	157	1,899	1,284	96	786	797	983	1,200	392	581	492	1,405
June	243	477	1,058	1,070	90	874	705	807	1,057	397	637	358	1,265
July	208	2,082	726	1,102	75	1,446	727	798	1,016	431	857	377	1,354
August	198	1,985	577	1,047	84	1,244	681	773	995	436	777	379	1,443
September	154	1,656	645	980	72	1,143	727	705	905	405	605	420	1,392
October	228	712	967	1,078	62	955	760	830	934	376	540	429	1,334
November	304	231	1,172	1,011	66	694	758	764	955	390	412	401	1,132
December	358	143	1,587	1,082	78	733	793	970	1,113	413	467	454	1,160
Totals for the year	3,306	7,959	19,232	13,590	1,136	10,644	9,501	10,676	12,993	4,871	6,714	5,402	16,134
Average for five years past	3,818	8,017	17,023	13,116	945	9,415	8,158	10,497	12,450	4,079	6,336	5,610	15,226
Totals for 1899	2,786	6,480	17,938	13,412	877	10,163	9,064	10,606	13,177	4,533	6,093	6,068	15,324

MORTALITY OF THE MONTHS

MONTHS	Total number of deaths	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal fever	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough
January:												
1886	6,747	2,252	33.3	161	28	66	53	3	138	20	44	192
1887	7,671	2,822	36.8	162	61	72	65	21	101	347	30	57
1888	8,742	2,848	32.5	176	37	64	71	21	265	55	35	40
1889	8,337	2,983	35 2	170	35	89	51	15	242	164	29	105
1890	13,020	2,227	18.2	89	29	117	62	....	93	42	39	114
1891	9,549	2,868	30.0	132	47	138	44	1	182	140	30	92
1892	13,460	3,246	24.1	107	58	116	38	2	294	80	51	48
1893	10,490	3,056	29 1	137	44	120	34	15	237	86	52	94
1894	10,948	3,088	28.2	124	53	205	30	34	146	122	35	55
1895	10,980	3,123	28.6	100	51	108	30	3	103	34	38	78
1896	10,176	3,064	30.0	129	49	158	22	1	113	199	31	73
1897	9,587	2,663	27.7	104	42	108	26	....	76	70	28	58
1898	9,632	2,416	25.0	95	34	122	26	....	123	112	21	44
1899	12,421	2,590	21.0	65	52	111	12	1	71	51	43	77
1900	10,552	2,788	25.5	94	29	144	17	...	75	154	43	79
February:												
1886	6,288	2,011	32.0	153	42	57	66	7	119	7	44	105
1887	6,653	2,439	36.8	159	39	57	46	21	79	239	28	39
1888	8,637	2,748	32.0	154	44	84	49	10	239	55	39	49
1889	8,183	2,933	35.8	170	32	71	30	9	324	136	30	119
1890	9,130	2,370	27.5	118	37	94	39	....	96	50	32	92
1891	8,704	2,813	32.5	141	41	127	32	....	203	127	58	81
1892	10,755	3,139	29.2	123	53	98	33	7	290	89	79	41
1893	9,333	2,774	29.6	136	46	101	29	23	198	80	58	121
1894	9,417	2,943	31.2	125	42	86	24	52	139	125	41	50
1895	10,771	3,049	28.3	85	40	99	9	5	98	44	38	87
1896	9,825	2,892	29.5	116	31	121	28	....	110	192	45	52
1897	9,826	2,743	28.0	97	32	98	23	....	84	89	26	75
1898	9,213	2,543	27.5	91	53	104	22	....	93	84	32	47
1899	10,763	2,506	23 5	70	45	116	20	1	87	37	36	76
1900	10,796	3,142	29.1	107	49	122	18	....	119	206	56	91
March:												
1886	7,918	2,552	32.2	138	63	75	78	6	119	21	46	129
1887	7,830	2,551	32.5	211	42	72	54	24	98	152	42	48
1888	9,405	2,788	30.0	147	49	74	56	35	239	56	48	48
1889	9,547	3,381	35.4	167	43	69	47	1	386	150	33	157
1890	9,844	2,772	30.0	117	47	72	36	2	90	94	47	110
1891	10,672	3,118	29.2	115	63	121	42	....	195	157	50	104
1892	10,978	2,342	21.3	124	77	96	37	3	285	114	70	48
1893	12,000	3,419	28.5	121	89	115	37	29	221	76	41	166
1894	10,196	3,215	31.5	137	52	13	26	47	179	164	46	95
1895	11,379	3,340	29.4	98	53	99	23	....	131	99	51	83
1896	11,080	3,255	29.6	103	54	103	20	1	76	251	47	77
1897	11,574	3,281	29.2	92	55	83	26	2	99	113	45	121
1898	10,300	2,860	28.0	96	73	119	23	....	108	144	24	89
1899	11,065	2,807	25.5	75	82	121	12	1	98	61	40	73
1900	13,033	3,574	27 4	93	50	120	23	....	94	202	86	129
April:												
1886	7,181	2,281	31.8	142	63	69	75	8	129	32	49	123
1887	7,967	2,443	30.6	136	56	56	75	12	112	111	45	30
1888	8,129	2,468	30.0	150	75	45	52	40	250	77	34	48
1889	9,078	3,116	34.5	174	45	78	64	2	363	148	47	137
1890	9,488	2,826	31.8	121	51	73	43	1	78	187	43	77
1891	13,981	2,809	27.3	92	67	103	48	1	273	159	42	109
1892	10,500	3,245	30.7	128	76	77	40	11	248	161	63	60
1893	11,865	3,339	28.1	111	104	111	34	23	199	73	55	133
1894	9,945	3,147	31.5	135	55	94	33	54	184	148	19	104
1895	10,545	3,506	33.3	115	78	115	32	....	118	133	62	107
1896	10,480	3,246	31.0	111	50	87	33	....	81	234	62	8
1897	10,325	2,813	27.3	95	55	79	27	7	81	98	44	99
1898	10,000	2,763	24.3	93	82	80	28	....	84	126	29	118
1899	10,383	2,627	25.9	77	90	101	20	2	78	68	40	65
1900	12,486	3,376	27.1	86	61	96	23	1	92	191	94	117

FOR FIFTEEN YEARS

Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
546	73	1,184	1,008	96	332	327	464	717	142	232	485	673
406	78	1,454	1,057	72	361	365	453	754	178	224	693	812
879	78	1,563	1,089	105	481	412	553	916	203	278	882	715
606	101	1,473	1,061	77	421	469	677	946	194	279	507	896
534	98	3,847	1,801	95	542	553	724	1,107	277	333	653	1,969
489	103	1,761	1,210	81	533	548	737	1,041	220	288	523	1,251
659	94	3,801	1,286	125	686	541	953	1,339	295	362	1,183	1,149
613	141	2,293	1,099	137	568	607	866	1,128	260	339	515	1,243
680	87	2,479	1,220	103	618	664	812	1,164	258	861	707	1,285
547	108	2,578	1,244	81	617	622	916	1,037	290	403	506	1,586
530	127	2,015	1,152	91	614	688	934	959	302	344	464	1,305
476	112	1,762	1,051	83	592	658	964	1,005	322	437	503	1,234
323	113	1,765	1,051	91	642	739	1,013	1,032	346	400	467	1,168
255	127	2,965	1,304	76	735	818	1,116	1,386	351	400	917	1,553
352	95	2,100	1,140	121	686	838	968	1,138	382	461	460	1,270
437	70	1,110	964	87	324	347	431	687	157	222	461	555
423	87	1,144	952	86	348	357	443	686	149	204	643	583
667	85	1,644	1,112	105	437	434	563	878	193	233	1,042	674
563	75	1,477	947	100	301	461	574	922	183	256	507	996
518	82	1,950	1,304	74	477	415	536	927	209	264	515	1,399
419	121	1,683	958	107	517	522	672	1,003	205	290	504	1,007
538	99	2,315	1,196	113	620	564	813	1,218	232	340	770	1,247
480	141	1,910	954	102	602	554	779	1,102	218	279	496	1,080
527	89	1,940	1,063	87	578	550	728	1,152	227	283	499	1,175
391	107	2,526	1,161	43	600	670	917	1,035	281	351	598	1,621
444	114	2,012	1,084	100	577	690	879	992	303	398	502	1,151
370	134	1,996	1,117	73	614	628	956	1,071	351	403	495	1,176
275	119	1,738	1,031	75	673	754	763	1,123	309	337	483	1,098
236	101	2,329	1,204	64	651	765	1,045	1,200	320	412	710	1,308
352	137	2,402	1,131	107	543	873	866	1,109	396	471	463	1,285
490	76	1,590	1,129	106	395	418	474	853	193	234	660	758
497	624	1,203	661	103	367	377	535	839	197	260	775	857
668	107	1,732	1,218	137	441	422	593	970	204	280	1,090	916
599	115	1,840	1,195	109	463	488	662	1,004	228	237	624	1,092
514	94	1,929	1,238	99	511	471	709	1,051	235	314	520	1,663
413	104	2,307	1,318	112	613	611	771	1,165	283	290	696	1,270
531	108	2,390	1,272	137	638	583	802	1,305	276	823	690	1,192
517	163	2,451	1,286	131	699	695	885	1,330	303	334	589	1,344
546	124	1,814	1,190	110	638	633	760	1,196	262	346	476	1,366
445	137	2,395	1,274	104	691	721	971	1,160	312	417	714	1,499
370	142	2,310	1,490	121	695	744	1,031	1,180	316	414	586	1,050
377	146	2,485	1,290	117	672	737	1,136	1,208	375	441	615	1,531
281	123	1,872	1,166	89	718	810	901	1,251	382	430	511	1,186
220	126	2,145	1,284	81	726	838	1,052	1,290	418	419	588	1,390
342	167	3,137	1,363	160	689	982	1,132	1,301	443	437	591	1,585
380	89	1,188	1,125	90	353	385	483	830	173	251	550	783
479	112	1,341	1,146	100	434	432	512	844	207	282	833	747
448	113	1,332	1,117	90	407	401	549	966	186	265	738	890
580	122	1,656	1,092	125	429	478	574	986	222	311	590	1,029
436	97	1,781	1,138	75	599	484	691	1,046	220	330	460	1,578
370	122	4,357	1,377	92	596	645	869	1,348	271	418	901	1,816
491	131	2,051	1,252	126	666	576	822	1,291	240	400	466	1,233
444	143	2,943	1,329	124	678	637	865	1,413	304	402	572	1,279
571	117	1,748	1,091	85	688	604	741	1,102	298	499	501	1,319
424	151	2,135	1,220	83	666	653	917	1,017	282	433	494	1,425
345	187	2,124	1,189	98	635	641	919	1,080	320	480	471	1,356
360	137	1,893	1,158	105	646	742	979	1,167	375	455	517	1,359
252	137	1,869	1,100	91	671	782	884	1,218	333	435	481	1,200
197	138	1,895	1,187	93	760	820	997	1,206	346	430	552	1,318
277	117	2,962	1,302	125	852	860	1,080	1,270	410	469	578	1,509

MORTALITY OF THE MONTHS

MONTHS	Total number of deaths.	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal fever	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough
May:												
1886	6,659	2,044	31.7	147	55	45	75	5	116	37	43	89
1887	7,528	2,457	32.6	153	52	37	66	42	114	96	41	27
1888	9,032	2,891	42.1	141	62	59	68	42	277	109	50	49
1889	8,357	2,773	33.1	155	42	63	37	....	276	108	40	121
1890	9,194	2,740	31.6	130	62	72	55	....	60	200	34	68
1891	10,213	2,917	28.6	117	57	88	35	....	252	184	37	79
1892	10,223	3,289	32.3	139	69	71	50	13	245	254	56	69
1893	10,718	3,080	28.7	128	159	93	40	21	193	92	43	127
1894	9,286	2,862	30.8	139	53	85	29	37	140	97	36	97
1895	9,452	2,888	30.5	116	46	92	38	1	83	183	36	77
1896	9,541	2,842	30.0	119	51	59	38	1	78	172	40	100
1897	9,266	2,469	27.0	103	51	65	44	7	98	119	35	62
1898	9,748	2,690	27.0	93	81	86	27	....	113	109	30	112
1899	9,556	2,366	25.0	79	71	93	14	5	76	85	45	37
1900	10,938	3,160	29.0	93	51	102	28	1	71	161	52	111
June:												
1886	6,316	2,228	35.3	193	57	33	50	2	74	56	24	72
1887	7,484	2,020	40.0	240	57	54	77	7	109	65	26	30
1888	8,368	3,306	39.7	227	40	45	59	11	233	130	25	61
1889	8,370	3,632	43.4	241	27	45	59	....	154	64	20	120
1890	9,185	3,515	40.2	217	28	69	52	1	68	161	29	90
1891	9,321	3,615	38.8	186	42	80	46	....	207	133	41	65
1892	9,075	3,437	37.7	188	57	5	62	10	183	255	37	59
1893	8,728	2,885	33.0	162	96	83	42	10	154	99	24	77
1894	9,805	3,588	36.6	182	32	72	43	24	121	60	15	79
1895	8,736	3,114	35.6	175	40	81	35	....	71	217	28	95
1896	9,342	3,466	37.0	183	44	66	37	....	50	140	22	85
1897	9,028	2,865	31.5	140	51	66	31	7	82	86	31	74
1898	8,637	2,458	30.0	122	104	70	22	....	82	99	17	111
1899	9,433	3,104	33.0	146	62	80	22	7	71	102	31	73
1900	9,444	3,101	33.0	120	39	65	26	1	44	120	40	71
July:												
1886	9,376	5,021	53.5	374	44	75	61	....	49	80	10	114
1887	11,363	6,049	52.7	389	51	102	61	12	69	66	15	48
1888	10,300	5,363	52.0	380	35	73	51	2	141	111	23	108
1889	10,806	5,563	51.4	352	46	117	61	1	69	33	14	112
1890	11,606	5,602	50.5	327	56	101	56	....	45	91	12	133
1891	11,370	5,782	50.8	329	57	97	44	....	181	93	19	48
1892	13,555	6,855	52.1	340	59	131	61	8	75	150	20	136
1893	12,337	6,246	50.5	324	86	87	45	16	79	75	13	92
1894	12,516	6,160	50.0	335	50	93	44	19	76	55	14	121
1895	11,681	5,841	50.0	326	49	108	26	....	32	130	20	143
1896	12,558	6,192	49.0	305	64	103	50	....	55	85	12	117
1897	11,235	5,086	45.5	272	54	87	36	4	69	76	16	66
1898	11,441	4,945	43.0	255	68	89	24	....	59	52	13	176
1899	11,291	4,819	42.6	239	56	94	34	1	45	82	21	101
1900	11,641	4,728	40.6	235	53	101	17	1	43	92	22	113
August:												
1886	7,142	3 312	46.3	314	49	104	66	....	43	45	11	134
1887	9,042	4,130	45.3	383	41	194	98	6	55	24	16	57
1888	10,017	4,867	48.7	345	29	174	87	6	120	73	9	144
1889	9,373	4,059	40.7	280	33	224	96	....	54	22	10	133
1890	10,642	4,480	48.8	292	49	167	86	....	35	69	11	153
1891	10,720	4,829	45.0	297	38	171	67	....	120	41	14	64
1892	10,903	4,933	45.2	292	54	182	56	18	61	51	19	128
1893	11,037	4,954	45.0	298	55	157	62	11	63	44	14	120
1894	10,399	4,664	44.8	283	44	183	41	6	48	19	17	129
1895	11,050	4,562	45.0	282	46	156	39	....	26	76	17	156
1896	12,475	4,789	58.4	246	43	171	48	....	19	54	20	122
1897	10,084	4,021	40.0	240	38	124	41	....	19	40	13	84
1898	11,302	4,811	42.5	255	40	181	49	....	26	26	16	162
1899	10 003	3,696	37.0	216	64	157	23	....	26	49	15	120
1900	11,047	4,223	38.3	237	47	174	37	2	22	49	11	86

FOR FIFTEEN YEARS—(*Continued*)

Croup and diptheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
394	123	835	1,085	73	355	363	443	711	186	331	445	850
540	142	1,098	1,052	71	379	378	445	870	191	359	714	814
627	131	1,438	1,195	98	458	481	570	1,009	211	370	738	988
492	123	1,172	1,102	86	511	421	599	951	237	377	548	1,061
420	142	1,538	1,077	95	539	508	691	999	273	371	436	1,554
339	127	2,138	1,234	114	561	555	741	1,021	248	434	629	1,349
480	113	1,972	1,207	108	617	610	736	1,159	270	461	443	1,180
489	175	1,944	1,239	86	660	664	834	1,287	286	544	508	1,284
585	136	1,333	1,093	93	644	577	745	1,056	265	487	427	1,271
390	157	1,459	1,149	83	628	669	903	1,022	270	503	413	1,250
292	205	1,474	1,193	93	647	644	852	1,066	326	555	400	1,155
368	113	1,357	1,054	80	637	716	935	1,001	386	478	449	1,211
223	127	1,576	1,127	84	695	757	915	1,171	375	478	489	1,193
203	122	1,389	1,169	93	716	763	912	1,117	359	555	484	1,249
290	157	1,899	1,284	96	785	797	983	1,200	392	581	492	1,405
380	465	626	911	74	382	323	470	714	188	298	397	702
475	887	587	948	56	516	404	458	784	190	362	597	805
490	811	778	868	94	516	393	491	1,075	237	411	472	1,130
423	1,112	744	919	77	639	386	485	951	222	376	414	1,133
364	1,087	972	984	83	679	497	541	1,000	237	452	347	1,433
319	808	1,098	978	103	720	479	678	1,127	224	534	353	1,286
309	676	1,060	1,005	89	692	449	693	1,132	248	545	368	1,080
359	478	1,010	1,065	67	612	503	679	1,108	240	560	384	1,073
575	739	1,037	982	84	723	583	718	1,180	307	628	419	1,334
338	627	825	974	63	665	592	718	927	275	620	357	1,188
362	915	877	1,097	69	793	625	782	947	290	551	385	1,205
354	503	945	1,002	83	784	643	864	1,037	325	530	362	1,178
174	372	857	1,007	96	783	656	780	1,031	367	581	361	1,062
236	686	883	1,028	76	869	709	746	1,087	403	661	409	1,192
243	477	1,058	1,070	90	874	705	807	1,057	397	637	358	1,265
384	2,096	541	949	56	646	357	449	907	166	373	480	939
375	3,669	477	956	90	738	406	429	1,259	227	499	729	1,185
411	2,957	588	966	73	784	383	492	930	210	397	454	1,111
305	3,092	537	1,012	63	844	449	542	1,029	227	357	502	1,394
293	2,916	706	1,073	60	1,024	497	543	1,092	242	553	395	1,718
304	2,906	717	1,032	67	1,036	502	652	1,158	239	458	363	1,397
849	3,629	801	1,093	96	1,264	556	700	1,648	266	842	447	1,503
379	3,206	746	1,073	72	1,219	552	729	1,252	300	568	383	1,333
470	3,258	688	1,094	64	1,184	527	638	1,282	298	683	392	1,468
323	2,974	627	1,040	83	1,135	599	732	1,000	322	549	364	1,425
293	3,086	785	1,050	72	1,267	661	842	1,169	349	649	409	1,541
258	3,396	693	991	92	1,117	564	804	1,090	323	750	410	1,383
159	2,298	710	1,116	67	1,244	646	793	1,118	380	762	388	1,279
193	2,068	748	1,076	70	1,428	755	690	981	396	645	402	1,405
208	2,082	726	1,102	75	1,446	727	798	1,016	431	857	377	1,354
307	1,484	480	861	58	528	330	309	657	153	266	458	798
302	2,158	457	926	67	665	361	442	933	199	354	731	956
345	2,465	528	959	74	647	402	473	1,010	227	370	530	1,345
327	1,901	591	1,026	63	680	437	540	936	254	373	477	1,196
233	2,192	666	1,064	70	871	442	537	1,125	236	512	375	1,749
266	2,405	675	1,041	87	925	480	612	1,133	257	617	477	1,235
275	2,328	704	1,056	73	985	512	662	1,208	279	572	369	1,301
328	2,406	661	1,040	13	986	534	676	1,167	283	600	432	1,314
383	2,068	621	1,031	71	945	573	626	1,011	295	543	405	1,331
305	2,303	668	1,051	67	1,027	523	741	1,034	357	597	457	1,404
257	2,326	636	1,059	69	1,062	644	802	1,113	294	1,695	508	1,518
249	1,799	597	1,027	92	1,023	617	803	879	387	600	387	1,265
124	2,345	613	1,019	67	1,288	651	749	1,062	390	709	430	1,349
171	1,535	599	1,034	75	1,091	679	736	955	394	576	433	1,271
198	1,985	577	1,047	84	1,244	681	773	995	436	777	379	1,443

MORTALITY OF THE MONTHS

MONTHS	Total number of deaths	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1000 deaths from all causes	Cerebro-spinal fever	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough
September:												
1886	7,239	3,206	44.3	272	42	176	74	....	36	26	19	100
1887	8,267	3,218	39.0	261	38	248	141	10	83	16	11	44
1888	8,433	3,877	45.9	294	31	279	102	12	114	43	11	142
1889	8,264	3,179	38.4	238	19	247	98	2	53	9	14	90
1890	9,111	3,356	39.0	224	30	234	84	....	40	29	15	102
1891	9,662	3,984	41.2	247	59	287	83	....	99	21	13	60
1892	9,610	3,737	38.8	235	48	280	74	9	78	37	16	93
1893	9,346	3,718	39.8	248	29	227	68	23	34	24	11	85
1894	9,525	3,948	41.5	244	28	229	51	9	33	15	11	102
1895	10,011	4,161	41.5	250	52	220	50	....	26	36	15	119
1896	9,467	3,396	36.0	197	44	221	65	....	26	31	11	102
1897	9,588	3,432	36.5	188	51	157	34	....	31	19	12	76
1898	11,481	4,320	37.5	230	47	333	82	....	26	20	6	120
1899	9,186	3,068	33.4	172	57	205	21	....	19	34	6	85
1900	10,251	3,760	36.7	220	41	245	41	....	12	21	16	66
October:												
1886	7,370	2,730	37.0	226	32	194	118	2	51	53	17	88
1887	7,370	2,317	31.3	201	38	182	104	4	113	15	13	14
1888	7,886	2,522	32.0	196	33	288	109	12	125	43	19	102
1889	8,050	2,288	28.4	177	21	261	87	....	57	7	13	70
1890	8,640	2,665	52.7	155	26	240	87	....	62	47	6	84
1891	9,718	3,454	35.5	200	47	290	70	....	118	36	14	54
1892	9,092	2,894	31.8	174	35	205	72	27	96	26	18	78
1893	8,981	2,994	33.4	185	56	253	50	19	65	14	16	56
1894	9,008	2,936	52.5	180	22	234	46	5	32	15	6	72
1895	9,320	2,951	31.5	167	36	265	50	2	36	46	13	95
1896	8,676	2,481	28.2	140	27	195	57	....	35	37	12	67
1897	9,080	2,055	22.6	138	30	173	44	....	49	33	15	59
1898	9,632	2,868	30.0	140	37	281	49	....	38	10	14	59
1899	9,280	3,175	34.2	111	46	202	27	1	36	24	17	60
1900	9,676	2,864	29.6	146	36	283	37	....	24	24	13	54
November:												
1886	6,872	2,423	35.2	213	47	157	98	1	68	185	18	49
1887	7,292	2,171	29.7	200	29	149	80	4	130	30	25	22
1888	6,987	2,111	30.2	174	21	153	61	8	171	52	16	90
1889	7,285	2,025	27.7	139	21	169	63	....	56	25	21	55
1890	8,209	2,199	28.5	146	29	216	68	....	102	74	17	62
1891	8,727	2,528	29.0	151	39	241	61	2	179	31	26	31
1892	8,448	2,540	30.1	167	39	184	50	18	127	51	26	77
1893	8,458	2,324	27.5	157	45	180	30	27	77	56	14	50
1894	8,146	2,254	27.6	151	25	189	30	10	52	15	17	53
1895	8,372	2,287	27.4	134	24	204	43	....	51	96	18	57
1896	7,888	2,165	27.5	113	26	132	21	....	48	45	18	44
1897	8,325	2,045	24.5	108	31	151	28	....	62	63	12	27
1898	8,709	1,970	22.7	90	36	189	30	1	32	18	17	52
1899	8,607	2,187	25.4	101	38	169	25	....	54	75	26	47
1900	8,715	2,178	25.0	110	38	233	26	1	33	32	12	50
December:												
1886	7,603	2,868	37.3	200	50	112	85	5	69	333	42	45
1887	7,886	1,497	31.6	190	36	104	78	12	204	44	35	21
1888	8,369	2,495	28.8	179	28	138	49	13	278	138	33	113
1889	8,483	2,311	27.0	126	38	117	53	....	73	33	22	84
1890	8,761	2,635	30.0	135	30	157	59	....	144	117	36	71
1891	11,241	3,023	26.9	134	32	183	47	....	246	78	33	41
1892	9,528	2,754	28.9	146	24	147	40	17	195	82	22	82
1893	10,600	2,834	26.7	117	46	158	27	35	106	70	25	73
1894	9,000	2,567	28.5	133	33	139	35	11	82	35	24	53
1895	9,438	2,771	29.5	134	31	169	34	....	75	172	34	72
1896	9,074	2,378	26.0	112	28	126	30	....	63	50	20	39
1897	9,160	2,195	25.0	97	28	160	20	....	91	61	26	43
1898	10,877	2,269	21.0	70	35	156	22	....	53	38	18	59
1899	9,833	2,441	25.0	93	39	155	18	2	69	88	33	72
1900	9,889	2,310	23.3	105	37	263	16	7	60	81	21	53

FOR FIFTEEN YEARS—(*Concluded*)

Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of the circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
322	1,186	497	919	61	588	352	386	674	165	298	474	843
559	1,009	697	989	45	522	352	503	722	232	331	765	959
308	1,440	649	895	69	600	343	494	895	198	303	510	995
343	1,094	646	946	65	638	794	483	870	206	326	446	872
247	1,196	710	1,027	47	768	418	520	871	236	375	450	1,712
334	1,434	720	1,039	65	924	479	596	997	289	449	421	1,293
372	1,266	834	1,010	69	877	502	629	898	280	459	461	1,208
411	1,395	713	912	68	863	528	597	1,026	268	443	391	1,221
289	1,454	668	988	54	852	492	612	970	268	488	399	1,413
322	1,672	675	1,009	65	923	577	703	988	277	522	452	1,308
294	1,077	826	1,023	57	848	556	810	905	306	543	417	1,305
259	1,171	785	998	70	949	602	825	933	327	651	421	1,217
135	1,872	768	1,076	70	1,162	647	856	1,116	378	927	478	1,362
183	972	755	947	50	1,065	646	729	937	366	537	327	1,247
154	1,656	645	980	72	1,143	727	705	905	405	605	420	1,392
618	493	845	985	50	497	366	409	692	193	294	549	825
707	297	853	942	53	458	367	475	759	207	309	717	743
432	386	1,031	1,034	70	518	392	495	791	232	278	512	984
570	339	959	1,016	64	557	431	595	899	238	343	491	1,032
382	360	1,001	1,061	71	635	485	597	884	238	366	470	1,538
527	794	1,012	1,124	60	832	558	695	1,023	259	430	494	1,281
551	491	1,132	996	62	709	547	694	1,024	263	448	420	1,198
599	533	947	1,070	58	771	542	658	1,010	273	422	363	1,206
551	635	901	1,013	54	757	540	690	959	298	452	477	1,249
458	554	749	1,112	67	761	630	767	840	319	511	445	1,564
361	338	1,123	990	70	689	605	908	815	323	455	437	1,132
370	447	1,090	1,070	79	717	608	820	911	358	568	437	1,205
180	687	1,044	1,052	65	943	673	848	1,015	376	526	443	1,292
254	361	1,163	1,064	57	832	753	810	1,017	394	550	417	1,195
228	712	967	1,078	62	955	760	830	934	376	540	429	1,334
675	166	1,056	982	70	328	361	448	576	166	264	494	661
844	117	1,041	964	67	370	375	490	709	178	301	718	640
538	112	1,051	893	58	414	398	522	796	164	300	443	726
501	110	1,133	944	67	450	452	599	822	199	311	419	868
467	124	1,207	1,019	74	518	435	554	851	208	387	409	1,388
567	143	1,507	1,017	65	583	501	656	967	237	404	437	1,033
697	137	1,445	940	55	582	490	674	845	244	377	382	1,008
706	152	1,242	957	57	595	529	691	925	242	411	469	1,009
701	146	1,130	1,020	48	566	575	661	880	262	383	392	991
483	150	1,348	979	71	583	584	750	798	263	473	370	1,027
429	132	1,184	876	66	524	599	828	772	330	443	355	1,017
339	191	1,153	977	78	605	667	867	841	308	432	418	1,075
242	165	1,288	1,049	54	625	681	918	998	380	450	451	1,027
307	132	1,274	1,027	61	642	729	832	916	370	457	412	1,014
304	231	1,172	1,011	66	644	758	764	955	390	412	401	1,132
664	107	1,427	1,047	63	338	376	474	781	167	233	537	644
883	78	2,205	1,022	75	441	408	543	798	208	295	761	636
621	87	1,392	1,017	95	434	461	584	917	232	345	577	817
546	110	1,635	1,127	83	463	466	656	950	238	288	455	1,046
497	80	1,756	1,045	85	533	483	643	1,000	257	285	454	1,029
725	115	2,731	1,090	100	646	593	801	1,183	296	416	732	1,153
673	113	1,737	1,145	78	575	572	779	1,132	259	404	416	1,026
678	123	2,445	1,099	80	581	610	792	1,078	254	359	724	1,237
672	103	1,555	1,117	58	551	628	719	1,033	269	284	401	1,088
563	115	1,741	1,054	79	596	609	931	866	306	510	399	1,083
520	127	1,454	1,062	66	604	673	899	927	330	495	443	1,098
335	121	1,541	1,056	61	610	679	952	981	344	427	501	1,118
244	141	2,250	1,185	71	657	845	1,091	1,177	369	479	562	1,425
331	112	1,793	1,088	82	648	789	941	1,085	416	451	437	1,184
358	143	1,587	1,082	78	733	793	970	1,113	413	407	454	1,160

THE INFANT MORTALITY

Of the 128,468 deaths, 39,204 occurred under the age of five years, 30.5 per cent. The average of the 10 years preceding was 40,095 infant deaths, being 35.0 per cent of the total. There has been a decrease, both relatively and absolutely, in the mortality of early life during the 10 years, although that of 1900 exceeds that of the three years preceding. There were more deaths under the age of five years in 1891 than in any year since, 42,740, and during the first five years of the decade 42,000 deaths annually against 37,500 in the last five years, and relatively 34.0 per cent of the deaths of all ages were infantile in the first five years against 31.0 in the last five years. The increase of the present year, compared with 1899, is distributed over all parts of the state, all the sanitary districts showing a relative increase. The July mortality of early life which is always the highest of the year was unusually low, being 40.6 per cent prior to 1896; it was never below 50.0, but for five years it has averaged 44.0 per cent, without disproportion through increase in general mortality.

THE ZYMOTIC MORTALITY

Preventable diseases (including cebro-spinal meningitis, typhoid fever, malarial diseases, smallpox, scarlet fever, measles, erysipelas, whooping cough, diphtheria and acute diarrhea) caused 13.7 per cent of the deaths against an average of 16.0 for the last 10 years. In each 10,000 of population there were in the state 25.0 zymotic deaths; in the Maritime district, 27.5 in the Hudson valley, 26.5; in the Adirondack and Northern, 20.0; in the Mohawk valley, 21.8; in the Southern tier, 17.0; in the East central, 17.8; in the West central, 15.5; and in the Lake Ontario and Western, 22.5.

Epidemic influenza (grippe)—This is noted first, although not included among the common zymotic diseases. As has been customary for 10 years past, an epidemic of it recurred, commencing in December, 1899, and it lasted into June, in effect at least, most of its mortality went to increase the number of deaths classed as acute respiratory. No absolute report can be ventured of the actual mortality from grippe since its results are largely secondary. But the unusually large mortality of 1900 was in good measure due to it, for in the six months of its duration it is estimated to have added 11,500 to the deaths of the year, making it the most fatal of the whole series of epidemic recurrences, of which it is the eleventh. The deaths were distributed as follows, including the last month of 1899 in which it commenced; in December, 600; January, 1000; February, 1250; March, 3500; April, 3250; May, 1500; June, 400.

The following is the historic record of the recurrence of this disease since 1889:

TIME OF OCCURRENCE	Acme reached		Duration		Number of deaths
1889-90	January,	1890	Three	months	5,000
Spring of 1891	April,	1891	Six	months	8,000
1891-2	January,	1892	Five	months	8,000
1893	April,	1893	Six	months	6,000
1893-4	January,	1894	Four	months	3,000
1895	February,	1895	Four	months	5,000
1896	March,	1896	Five	months	2,750
1897	March,	1897	Four	months	3,000
1898	March,	1898	Six	months	2,500
1899	January,	1899	Five	months	8,800
1900	March,	1900	Six	months	11,500

Typhoid fever—There were 1948 deaths from this disease, which is unusually large, the average for the past 10 years being 1689; in fact this is the largest of any year of the decade, the smallest mortality being 1351, in 1897.

This table shows the distribution of it as compared with deaths from other diseases for a series of years:

In each 1000 deaths there were from typhoid fever in the—

	1894	1895	1896	1897	1898	1899	1900
Maritime district	8	8	8	8	10	8	10
Hudson valley district	22	33	35	21	28	26	28
Adirondack and Northern district	22	25	26	18	23	26	26
Mohawk valley district	21	20	13	17	22	13	23
Southern tier district	26	26	32	14	20	20	24
East central district	22	20	18	12	21	19	20
West central district	16	10	13	10	10	11	20
Lake Ontario and Western district	25	20	16	16	21	17	17
Entire state	13	14	13	12	15	13	17

In the sanitary districts the rate of mortality for the year to 100,000 population was as follows: Maritime district, 20; Hudson valley, 50; Adirondack and Northern, 40; Mohawk valley, 35; Southern tier, 33; East central, 27; West central, 28; Lake Ontario and Western, 24.

The following from the Monthly bulletin for October, 1900, relating to the distribution and etiology of typhoid fever in this state, and especially in the cities of the state is reproduced:

The data used are the records of the decade 1890–9. The average yearly mortality for that period from typhoid fever in the state has been 1655, no year varying 300 either way from this. Distribution through the year was (months reduced to 30 days): In January, 126 deaths; February, 112; March, 92; April, 92; May, 78; June, 75; July 96; August, 160; September, 240; October, 226; November, 186; December, 150.

Geographical distribution is presented in the following tables:

DEATH RATES FROM TYPHOID FEVER IN THE SANITARY DISTRICTS, 1890–9

	Maritime district	Hudson valley	Adirondack and Northern	Mohawk valley	Southern tier	East central	West central	Lake Ontario and Western	Entire state
Population per square mile	1,535	117	26	80	62	60	65	180	136
Per cent urban population	90.0	40.5	7.5	31.0	30.0	25.0	13.0	65.0	63.5
Typhoid deaths per 100,000 population	17.0	46.0	27.0	37.0	29.0	39.0	20.0	32.0	24.0
Typhoid deaths per 1,000 total deaths	8.6	25.8	21.3	21.5	23.4	20.0	13.5	20.5	13.6

The urban population mentioned is that of all incorporated cities, of which nine have about 10,000 population, 20 between 12,000 and 25,000, seven between 30,000 and 65,000, five about 100,000, including the large metropolis. The mortality to population in this and the following table is estimated on the reporting population of 1895. In the next table New York includes only the present boroughs of Manhattan, Bronx and Brooklyn; the figures before cities show their sanitary districts in order of the above table. The deaths in 800 rural towns are also given in the table.

DEATHS AND DEATH-RATE FROM TYPHOID FEVER 1890–9 IN TWENTY CITIES OF 20,000 AND OVER POPULATION

	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	Rate per 100,000 population
Low Prevalence											
1. New York	533	564	561	557	484	493	450	473	656	498	17.0
1. Yonkers	4	11	3	8	11	8	5	5	6	5	16.0
3. Kingston	1	5	3	6	8	2	6	3	1	7	20.0
4. Utica	11	11	20	5	12	8	9	8	14	9	20.0
7. Auburn	10	10	8	2	8	14	2	0	2	7	25.0
8. Rochester	46	51	71	58	18	43	27	35	19	32	26.0
Moderate Prevalence											
8. Oswego	12	9	4	11	6	11	6	1	4	5	27.0
8. Buffalo	102	129	98	112	185	98	68	70	98	88	31.0
6. Syracuse	29	44	30	29	41	29	30	21	45	26	35.0
2. Newburgh	3	4	20	17	4	7	15	6	4	12	37.0
Excessive Prevalence											
2. Poughkeepsie	5	9	13	21	14	10	5	10	5	6	42.0
4. Amsterdam	10	9	8	12	10	7	4	5	28	4	52.0
5. Binghamton	21	32	18	16	18	13	9	13	28	10	52.0
2. Troy	25	48	27	37	35	38	28	20	51	48	55.0
5. Elmira	9	12	16	14	7	17	52	10	17	12	55.0
Very High Prevalence											
3. Watertown	6	6	8	9	15	31	9	12	19	18	80.0
8. Niagara Falls	3	11	11	5	8	18	16	13	21	20	80.0
2. Albany	62	118	50	58	52	162	97	84	94	82	86.0
2. Cohoes	21	50	16	15	12	18	13	13	28	21	90.0
4. Schenectady	65	42	50	21	10	14	24	7	1	1	100.0
Rural towns	331	469	385	407	402	400	376	304	381	397	23.0

The tables show the geographical distribution of typhoid fever year by year for the decade; the relation of seasonal distribution to etiology was referred to in the August bulletin.

Some zymotic diseases belong especially to the cities; evidently typhoid fever does not of necessity. The Maritime district is almost wholly urban, and its annual death rate of 17.0 and ratio of .86 per cent of total mortality, which is constant, is the lowest, and, including more than half the entire population, reduces the state death-rate to 24.0, which without it would be 31.0. Neither is on the average a disease of high mortality in rural towns, for they have a constant mortality of from 22.0 to 25.0 per 100,000 population, and districts with the smallest so-called urban population approach nearest to the rural rate.

Typhoid fever is contracted by taking food or drink which contains living germs of the disease. Heat destroys their life, so cooked food does not carry it; food eaten uncooked is rarely exposed to infection, and this is likewise true of milk, for it is only infected by being handled, it or its utensils, by persons having to do with the sick. Epidemics due to infected milk have characteristics readily recognizable. Infected water is the chief medium for causing typhoid fever.

The 20 cities in the table are placed in the order of typhoid fever prevalence. Only six have a rate below or near the rural. These take their water supply from remote sources not liable to infection, impounded springs or pure lakes. Oswego uses Oswego river, which is a sewage-bearing stream, in some way filtered, and many local wells. Buffalo prior to 1895 used some Lake Erie infected water; its rate since has been 23.5. Syracuse about the middle of the decade changed from the Onondaga to the more remote Skaneateles lake since then its rate has been about 25.0. Newburgh has a varying typhoid mortality, the causes of which are not ascertained; its public water supply is from a flowing stream. Poughkeepsie uses Hudson river water, sand filtered. Amsterdam has had years of excessive prevalence which give it a high average, though it gets a public water supply from remote springs, but probably local wells are used. Binghamton takes from the Susquehanna river above the city, few wells being used; Troy from Hudson river unfiltered, and part from impounded streams; Elmira from Chemung river, typhoid infection of it being traced in 1896, mechanical filters being used for two years, also many local wells. Of the five cities having very high rates all take their supply from sewage-bearing streams: Watertown from Black river, few local wells used; Niagara Falls from, in part at least, a canal for power from the river which traverses the city; Albany from the Hudson river, unfiltered until within a year; Cohoes from the Mohawk, no local wells used; Schenectady until 1897 from the Mohawk. The last eight with highest rates have used unfiltered water from sewage-bearing streams.

Two of these illustrate conspicuously the dependence of this disease on the water supply. Schenectady in 1897 changed from its river supply to one from wells remote and free from chance of contamination and, as the table shows, from having the highest typhoid mortality in the state the disease has almost disappeared. Albany installed an elaborate system of slow sand filters for its river supply, and during the year of use just completed its rate has fallen to 35 from 100 of the 12 months preceding the use of the filters, and at that one-third of the cases are reported to have been imported from an outside source. Pumping sewage-polluted water from below the state dam into the Troy mains, August 16 to September 3, was followed directly by the recent extensive outbreak of typhoid fever in that city, as reported by the health officer.

Typhoid fever is a measure of the purity of a water supply. In rural towns the problem of its control is not easy, but cities can command the quality of their water and the disease should practically disappear from them by closing local wells which become of necessity infected and bringing water from a pure source or else by purifying it.

Diphtheria—(including all returns of croup). From this there was a mortality of 3,306, the average of preceding decade being 5000. But there is a consideable increase over the two preceding years. For years prior to 1895 there were seldom less than 6000 deaths from diphtheria in the year; there began then a decrease which has been constant until 1900 when there is a moderate rise. This table will show the distribution, and that the increase, though general, is chiefly in the maritime districts.

In each 1000 deaths there were from diphtheria in the—

	1894	1895	1896	1897	1898	1899	1900
Maritime district	71	52	45	43	21	28	32
Hudson valley district	31	28	26	28	18	19	21
Adirondack and Northern district	28	18	27	25	11	10	14
Mohawk valley district	28	11	15	20	15	19	20
Southern tier district	39	21	15	17	13	13	20
East central district	30	13	20	22	16	9	10
West central district	17	14	10	14	6	12	15
Lake Ontario and Western district	40	39	40	34	16	16	16
Entire state	56	41	38	35	22	23	25

The following "Observations from an outbreak of diphtheria," is from the Monthly bulletin for July:

Questions regarding the course and management of diphtheria are at this time the most interesting of any coming before sanitary investigators. Newly observed phenomena and their bearing on the control of outbreaks are of practical application and should find record for the earnest consideration of health officials. The following is a summary of observations of a very interesting outbreak at the Willard state hospital, by Dr. W. A. Macy, medical superintendent:

Early in 1897, diphtheria was brought into the institution through employees who had been in contact with a case nearby. There followed an epidemic, a moderate number of cases developing from time to time for six months, when it ceased without recurrence then or during the following year. In June, 1899, diphtheria broke out again, probably likewise imported, spread rapidly, 75 cases occuring, of mild type. It has continued, with intermissions of a month or two, till now, there being at present no actual diphtheria, but a number of germ cases in isolation.

The condition is of a long-lasting epidemic, in an institution mainly adults of 2700 population, under resident medical supervision, with a well appointed laboratory used on so extensive a scale that every member of the community had cultures taken over and over again, all of which are recorded. It was observed: (1) that the type of the disease varies in different epidemics; in the first, 1898, nearly every one exposed, even slightly, took diphtheria, but the course of the disease was mild; in the present epidemic it was much less infectious and much more virulent. (2) The germs of diphtheria can maintain activity with much persistence outside the body and resist the action of ordinary disinfectants. Recurrence of the epidemic after all the people were found germ-free was found to occur in rooms which after occupation by the sick had been subjected freely to formaldehyde, sulphur fumigation, washing with bi-chloride, hot soap-suds or soda solution, both walls and wood work. Twenty-five cultures were often taken before a building was found free. (3) It was found that cases discharged from quarantine after three negative cultures communicated diphtheria, and new cultures showed Klebs-Loeffler germs present; then the sick were discharged only after three negative cultures taken on alternate days. None of these thus tested were found afterwards to show the disease germs, but nothing short of this was found trustworthy. (4) Presence of the germs in healthy throats was found; they persisted there for weeks; cultures were almost or quite as pure as from membranous cases; virulence tests in the laboratory showed them to be as dangerous as those from cultures taken from clinical cases. Membranous diphtheria followed exposure to such, and even at second hand, for in one clear instance a person associating with a germ case without sore throat carried in his clothing the disease in virulent form into a family living several miles distant, bearing germs taken from that case. It would appear then that bacteriological diphtheria is as potentially dangerous as clinical. (5) Change in the shape of germs attended convalescence; when these " degenerate " forms occurred the disease generally soon yielded. There was reason to think that these attenuated forms may under conditions favorable to rapid development increase in strength, but that they have not sufficient virulence to be actually dangerous. While in membrane cases the bacilli followed a definite life history, those from a normal throat may differ daily. (6) Immunization by anti-toxin of all employees, through whom almost solely it spread, and of all exposed patients gave reason for satisfaction, and this experience commends its use for all much exposed. A lessened dose on repetition is commended; and to give it in the fleshy part of the body not pressed on by clothing, not in the extremities. It was used with great confidence in treating the sick, and of 75 membrane cases there were no deaths.

An epidemic of diphtheria, showing these phenomena of persistence, of resistence to common germicide treatment, of extensive distribution among immune adults, of prevalence on so large a scale, and occurring under conditions favorable to so elaborate management and detailed investigation rarely occurs. The use of anti-toxin was tested on a large scale, there was much study of disinfection, and the laboratory work was carried to unusual extent, 21,000 cultures having been taken during the year, all of which with a history of every case have a complete card record. Of the mass of technical study only the mention of some practical observations furnished by Dr. Macy find room here.

Scarlet fever has caused in the last 16 years 21,000 deaths, but during the first 10 years there was an average yearly mortality of over 1600, whilst the average of the last six years is less than 800. Until 1895 there were from 1000 to 2500 deaths every year from scarlet fever. In 1895 there was an abrupt fall to 850 deaths, and since the yearly mortality has steadily decreased, and the 689 deaths in 1900 is the smallest annual mortality on our record. During this last six years many extensive local outbreaks of scarlet fever have been reported, but the reporters mention the fact of its mildness. The question arises whether these are outbreaks of true scarlet fever, or of rubella, or the proposed "fourth disease." Whatever it may be, the abrupt decrease in reported mortality from scarlet fever and its continuing decrease for six years is a recorded condition.

Measles caused 1333 deaths, the average of the decade being 1080 yearly. It has periods of years of prevalence in which over 1000 deaths occur, followed by years of diminution with less than 1000 deaths, usually two or three years of each period.

Now following three years of low fatality the period of increase has set in. A similar fact is noted with regard to *whooping cough*. During the year measles has prevailed chiefly in the sanitary districts having large city population.

The acute diarrheal diseases cause more deaths than any other of the zymotic group, in fact nearly as many as all the rest. There were about 8000 deaths from this cause, which is near the yearly average.

In each 1000 deaths, diarrheal diseases caused in the sanitary districts—

DISTRICTS	1894	1895	1896	1897	1898	1899	1900
Maritime	80	80	71	70	74	55	56
Hudson valley	63	63	72	51	60	52	68
Adirondack and Northern	57	53	53	45	60	50	72
Mohawk valley	65	55	60	43	65	42	65
Southern tier	58	50	50	39	60	38	55
East central	64	56	62	38	54	34	68
West central	40	45	53	31	52	34	57
Lake Ontario and Western	104	100	93	76	90	70	86
Entire state	76	75	73	63	70	53	62

Smallpox was brought during the first half of the year to 17 places in the state from outside, in all of which it was controlled without spread; viz., in Mt. Vernon, Fort Edward, Niagara Falls, Stockton, Otego, White Plains, Buffalo, Coeymans, Haverstraw, Southport (these three brickyard laborers from the south), Oneonta, Tarrytown and Dobbs Ferry, Sayville, Clyde, Rochester and Jamestown, in all 40 cases. Of these one died, the only death prior to December outside of New York city, where during the time six deaths occurred.

In November, however, a traveling ministrel troupe having in its retinue a mild case of smallpox gave public performances at seven places before the fact was discovered, and as a consequence during that month smallpox developed at three of the places, viz., Albany, Schenectady and Gloversville, all of which continued to have the disease long into the following year, and became centers for its distribution to other localities, especially the last two. By the end of the year smallpox had reached from Schenectady and Gloversville, directly or indirectly, Glens Falls, Watertown, Johnstown, Bleecker and Elmira, the number of cases to properly credit to 1900 being perhaps 40. The further spread of this outbreak into the succeeding year will find its place in the next annual report. There were 14 deaths in the state from smallpox in 1900, of which 11 occurred in New York city, one in Clyde in July, and one each in Schenectady and Gloversville in December. There were all told between 75 and 100 cases outside of New York city in the localities mentioned.

Consumption—The average annual mortality from consumption for the past decade is 13,200; that of 1900 was 13,590. This is somewhat larger than that of any one year, but there is a remarkable uniformity, no year varying much from 13,000 deaths. The moderate increase is due to the effect of the grippe epidemic during the prevalence of which the death rate from consumption was excessive, almost as many deaths occurring in the first five months of the year as in the remaining seven.

In each 1000 deaths there were from consumption in the—

DISTRICTS	1894	1895	1896	1897	1898	1899	1900
Maritime	110	112	110	106	115	135	114
Hudson valley	111	107	115	112	115	110	110
Adirondack and Northern	115	114	116	108	112	99	100
Mohawk valley	111	113	104	95	106	91	90
Southern tier	81	86	86	75	75	83	76
East central	108	98	93	96	90	85	90
West central	118	100	90	90	90	87	84
Lake Ontario and Western	103	105	101	95	100	93	92
Entire state	108	109	110	108	108	110	106

Cancer has caused a steadily increasing mortality every year in the last decade; the number of deaths for each year beginning with 1891 being: 2028, 3152, 3232, 3305, 3554, 3789, 4131, 4385, 4533, 4871.

The following table shows the actual reported mortality in each of the sanitary districts for the past six years:

DISTRICTS	1895	1896	1897	1898	1899	1900
Maritime.	1,805	1,894	2,031	2,174	2,302	2,449
Hudson valley	356	404	425	419	415	476
Adirondack and Northern	173	192	213	212	212	234
Mohawk valley	207	189	243	264	255	295
Southern tier	182	217	260	253	280	287
Eastc entral	255	258	268	305	310	329
West central	162	177	199	218	213	232
Lake Oniario and Western	414	459	495	530	548	569

Following the estimated population of the Monthly bulletin there were in the sanitary districts:

Deaths from cancer per 100,000 population—

DISTRICTS	1898	1899	1900
Maritime	58	57	62
Hudson valley	60	56	68
Adirondack and Northern	54	54	60
Mohawk valley	67	65	74
Southern tier	60	64	65
East central	74	74	79
West central	70	65	71
Lake Ontario and Western	61	61	65

The East central district shows uniformly the highest rate of cancer mortality and the Adirondack and Northern the lowest, estimating from the returns received.

Old age—There were 5402 deaths which were attributed to this cause. The following from the Monthly bulletin for May, 1900, on "Old age as a cause of death:"

During the past five years the average recorded mortality from old age in the month of May has been 443, or about the same as in this months. In April there were 578, the average being 500. This was 4½ per cent of the total mortality. In the state, outside of three large cities which do not make direct returns to this office, there were 435 deaths, 8½ per cent of the total mortality, recorded as from old age of which we have the original certificates; all the rural population is represented. In five large cities less than 2 per cent of the deaths were reported from old age.

While sometimes questioned as to the propriety of being admitted as a final cause of death, no doubt old age is as legitimate a cause as any, and finds a place in every classification. How far the element of senility may be accepted as the chief, or only the contributory cause of death may in classifying certificates of death be questioned in many cases. This is not true of this cause of death only, for often it must be determined from the judgment of the statistician regarding several diseased conditions found on a certificate as to which is the chief cause.

Definite diseases reported should be placed in the group which they represent if there is one, without doubt, whatever the age of the decedent, but there are many indefinite conditions found on death certificates as primary or secondary, where the element of senility may fairly predominate.

Of the 435 deaths noted, 170 were certified as from *old age* without other cause being given. The ages of these were 63 to 100; 4 were in the decade of the sixties; 45 in the seventies; 113 in the eighties; and 22 were over ninety. The phases used were old age, senility, senile debility or decay or marasmus or atrophy or exhaustion.

There were 80 deaths placed in this class of which *grippe* was returned as the cause, all of them occurring at advanced age, and with old age as a contributing cause. Sixty-eight were over 75 years of age, six being past 90. Grippe has no separate place in the Bulletin, and is either registered under the class of local diseases or in the unclassified group, save those in which the element of senility was placed as the chief or contributory cause of death. There were probably 1300 deaths in all from grippe during the month in the part of the state represented by these 80 occurring in old age.

Sixty-five of the deaths classified as from old age were reported as *heart failure*, heart atrophy and the like, with or without old age as contributory. The average age was 79. Heart failure, a justifiable term though an unfrequent cause of death, and generally misused on death certificates, when reported at advanced age without definition as to the condition of the heart except its enfeeblement of action, can no doubt be interpreted as due to suspension of the vital forces incident to old age. One-eighth of the deaths from old age were reported as heart failure past the age of 75.

There were 26 certificates on which the cause of death was given as general debility, 14 as exhaustion, 10 as asthenia and inanition, three as paralysis of the vital nerve centres, and 11 as other indefinite conditions such as nervous prostration; all occurring at advanced age. These are undoubtedly phases used by the reporter which could have been replaced by senility, where they should be classed instead of swelling the unclassified group.

The remainder of the deaths placed in this group were reported from various indefinite or unimportant conditions not usually grave, and all occurring at advanced age which was generally noted as contributory; anæmia, catarrhal fever, overexertion, septicæmia, malaria, chronic bronchitis, senile gangrene, purpura, chronic rheumatism, autointoxication, dyspepsia, chronic liver trouble, atrophy of liver, colic, hemorrhoids, congestive chill, euthanasia, senile dementia, shock from grief, lumbago, a slight accident, and general impairment or disease of several different organs of the body. These are of value as indicating the point of vital failure and are worthy of report although the term selected is often surely ill-chosen. They serve to indicate that giving out of vitality shows at the surface at various points, though without producing defined disease. The enfeebled nervous system succumbs to grippe or loses its control of bodily nutrition, the heart fails, the digestive system shows functional weakening as the prominent symptom, ill-nourishment of the tissues and impoverishment of the blood occur. The reporter makes record of these, but evidently death does not occur in these old persons from the indefinite conditions but chiefly from senility of which they are the expression. Such causes are infrequent on certificates of death occurring in early life.

At what age senility may be accepted as a factor, or prime cause, of death cannot be formulated. Of the deaths reported from old age alone, the youngest was 63 and four were under 70; 30 per cent were under 80, and two-thirds were between 80 and 90.

What reported attendant conditions may be considered subordinate to old age can be given more accurately. All zymotic diseases, consumption, acute respiratory diseases, definite diseases of the digestive, urinary, circulatory and nervous systems, cancer, and violence should be always classed under their respective groups no matter at what age, causing death. The certificate ought to report the morbid conditions even when old age is given as the prime cause of death; besides these, the statistician may find others not so reported which can properly be classed under this group.

There were 514 deaths above the age of 75, in addition to the 435 classed as from old age. Of these, six were from erysipelas, four diarrhea, 87 acute respiratory diseases (38 pneumonia and 34 bronchitis), 13 consumption, 36 diseases of the digestive system, 55 of the urinary (40 kidney and 14 bladder), 124 of the heart, 150 of the nervous system, 27 cancer, 16 violence (three suicide).

Old age is a larger cause of death in the rural parts of the state than the urban; at least the average age at death is much greater. The mortality under the age of five in April was 34 per cent in the Maritime district and 17 in the rest of the state; but deducting this infant mortality the average age of decedents above this age will be found greater in the country than the city.

Unclassified causes of death—This group of necessity contains a large number of deaths which for one cause or another cannot be placed under the groups of diseases commonly followed, and which number 16,134 in 1900. The following is from the January Monthly bulletin:

Every classification of diseases and of causes of death contains one group of so-called unclassified or ill-defined causes. The classification of this Bulletin, which is followed by the National board of health during its existence and which is not dissimilar from others generally followed, enumerates the mortality from the common acute infectious diseases, consumption, the local diseases, cancer, violence and old age, and includes all not thus classified in the unclassified group.

This is one of the largest groups in the Bulletin, generally being exceeded in number by but one or two of the others. In this issue it is second in respect to number, being exceeded only by respiratory diseases and approached only by the mortality from consumption and diseases of the nervous system; more than 12 per cent of all the deaths of the month are placed in this group. With a total mortality almost identical with the average for January for the past five years, this group contains 100 fewer this month than the average and the number is less by 300 than that of January, 1899. During 1899 one-eighth of the reported deaths were placed in this category.

Taking for analysis 364 of the number reported this month under this head, these being from rural towns and the villages and smaller cities, it is possible to group them in certain fairly defined classes.

One-half of the number, 182, are found to have occurred at the commencement of life from conditions incident to birth or congenital weakness and defect; 100, or more than one-fourth of the number, occurred from recognized causes of death not falling under the other groups; whilst the remainder, 82, were from indefinite conditions or ill-defined and imperfectly reported causes of death.

Of the 182 deaths occurring from prenatal causes or from conditions incident to birth and within a short time of delivery, the large number of 70 are found to have been due to prematurity—nearly one-fifth of the entire number under analysis were reported as the result of premature birth. There were 22 deaths reported as due to accidents at birth. That is from instrumental delivery, from prolonged and difficult labor on the part of the mother, from mal-presentation of the child, and the like. There were 23 deaths attributed to congenital malformation, death occurring within a few hours or a few weeks of birth. Chief of these was malformation of the heart sometimes reported as non-closure of the foramen ovale, or as imperfect heart, or as simply cyanosis. A small number were from spina bifida, and others from malformations of the head, chest, lungs and other parts.

Feebleness at birth and death in consequence, very soon after birth caused 67 deaths. Thus may be classed many deaths occurring at or near birth from causes variously reported and generally ill-defined; asthenia, exhaustion, inanition, marasmus, heart failure, lack of vitality, malnutrition, athrepsia, multiple pregnancy in one case of triplets, non-viability, convulsions and the like. More definite causes should have doubtless been given in some of these, but in general they were probably due to feebleness prenatal in origin.

Of the remaining 182 deaths, some of them occurred in early life, 100 being from diseases of a definite nature but which do not come in the refined groups. They form part of the group sometimes designated as general diseases, which includes very ill-associated diseases, some of which our classification makes separate provisions for, such as the infectious diseases, consumption and cancer. In this class are rheumatism, from which there were reported 10 deaths without further definition, diabetes 23 deaths, pelvic abscess, caries of hip, Pott's disease, chronic bronchitis, congenital syphilis, chlorosis, anæmia pyæmia, Graves' disease, uterine fibroid. These having little general relation to each other, or to other groups of diseases might be regarded as a sub-group of general diseases, though sufficiently well finding a place with the unclassified causes of death.

Finally there is found to be a considerable number which have no definite place because of indefiniteness of the reported cause of death. Some of them should not be accepted since they are capable of better definition, such as heart failure which if due to heart disease should be so reported, dropsy, asphyxia. These are generally results of more definite conditions which should be reported. Besides in this category, fall deaths, at various periods of life, reported as from marasmus, malnutrition, general debility, inanition, making one-fourth of this group; in many cases more accurate definition of the cause of death could have been given, as for instance old age in case of death occurring at advanced age from conditions thus indefinite. Other causes of death here included are abscess, chronic opium habit, chronic alcholism, exposure. The age and other conditions reported determine to some extent how far, in classifying such reports, they can be eliminated from the unclassified causes of death and placed with propriety in a more definite group. This group should be legitimately reduced by requiring more exact returns.

As to distribution, the unclassified group is largest in urban districts; the enfeebled condition of early life especially fall in the crowded parts of the city or swell the death rates of asylums for children taken from these surroundings. To an extent they are therefore preventable diseases. The districts having a large city population have a large number of unclassified deaths composed of the elements noted; they have a small number of deaths reported from and attributable to old age; the converse is true of the rural districts. During an epidemic of grippe the unclassified group is increased in all districts. This is notable on a comparison of this Bulletin with that of January, 1899, when an extensive epidemic of that disease was at its height.

While this group contains quite diverse causes of death it is a group fully distinct from all others and one well to maintain without subdivision. It is largely composed of those dying from conditions of general enfeeblement, to which alone they succumb or to the effects of exposure or other intercurrent strain, such as epidemic influenza, the stress of which on account of their impaired resistence they are unable to withstand.

Record of each reporting local board of health, showing total deaths from all causes and from the principal zymotic diseases for 1900, *by counties*

[Cities are printed in SMALL CAPS, villages in *italic* and towns in Roman type]

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Albany county	165,571	2,995	15	87	......	9	15	12	77	160	341
ALBANY	94,151	1,742	9	38	......	4	12	2	52	70	231
COHOES	23,910	471	3	27	......	3	1	4	7	47	47
Berne	1,947	30	......	......	......	......	......	......	2	3	2
Bethlehem	4,226	43	......	1	......	......	......	1	1	......	3
Coeymans	3,952	55	......	1	......	......	......	......	......	......	6
Guilderland	3,530	42	......	......	......	......	......	......	1	1	1
Knox	1,244	19	......	......	......	......	......	......	......	......	......
New Scotland	3,058	43	......	......	......	......	......	......	1	......	3
Rensselaerville	1,795	36	......	1	......	......	......	......	......	2	2
Colonie	7,035	135	1	2	......	1	......	1	3	5	8
Westerlo	1,632	20	......	......	......	......	......	......	......	......	......
WATERVLIET	14,321	268	......	11	......	1	1	4	4	25	26
Green Island	4,770	91	2	6	......	......	1	......	6	7	12
Allegany county	41,501	528	......	6	......	1	1	......	8	18	18
Alfred	1,615	16	......	......	......	......	......	......	......	......	1
Allen	655	6	......	......	......	......	......	......	......	......	......
Alma	1,182	11	......	......	......	......	......	......	......	......	......
Almond	1,436	11	......	......	......	......	......	......	......	......	2
Amity	2,216	39	......	......	......	......	......	......	......	3	3
Andover	1,869	25	......	......	......	......	......	......	......	......	1
Angelica	1,639	27	......	......	......	......	......	......	......	......	2
Belfast	1,574	20	......	......	......	1	......	......	......	......	......
Birdsall	634	6	......	......	......	......	......	......	......	......	1

Bolivar	2,035	27	......	......	......	......	......	......	......	2	......
Burns	1,424	21	......	......	......	......	......	......	......	......	......
Caneadea	1,310	16	......	......	......	......	......	......	......	......	......
Centerville	833	12	......	......	......	......	......	......	......	......	......
Clarksville	836	4	......	......	......	......	......	......	......	......	......
Cuba	2,369	37	......	......	......	......	......	......	1	1	......
Friendship	2,136	29	......	......	......	......	......	......	......	......	1
Genesee	1,052	10	......	......	......	......	......	......	......	2	......
Granger	800	11	......	......	......	......	......	......	......	......	......
Grove	812	12	......	......	......	......	1	......	......	......	......
Hume	1,749	21	......	......	......	......	......	......	......	1	1
Independence	1,280	13	......	1	......	......	......	......	......	......	......
New Hudson	926	8	......	......	......	......	......	......	......	......	......
Rushford	1,300	26	......	......	......	......	......	......	......	......	1
Scio	1,281	15	......	1	......	......	......	......	......	......	......
Ward	547	1	......	......	......	......	......	......	......	......	1
Wellsville	4,981	76	......	3	......	......	......	......	2	4	3
West Almond	601	5	......	......	......	......	......	......	......	......	1
Willing	1,246	17	......	1	......	......	......	......	......	......	......
Wirt	1,163	6	......	......	......	......	......	......	......	......	......
Broome county	69,149	1,247	2	21	1	10	3	3	56	42	90
BINGHAMTON	39,647	822	2	17	1	9	2	3	48	37	66
Barker	1,072	15	......	......	......	......	......	......	......	1	2
Binghamton	847	9	......	......	......	......	......	......	1	......	1
Chenango	1,372	21	......	......	......	......	......	......	......	1	1
Colesville	2,773	49	......	......	......	......	1	......	......	......	2
Conklin	946	12	......	......	......	......	......	......	......	......	2
Dickinson	728	3	......	......	......	......	......	......	......	......	1
Fenton	1,171	19	......	......	......	......	......	......	......	......	1
Kirkwood	918	19	......	......	......	......	......	......	......	......	......
Lisle	1,710	25	......	......	......	......	......	......	......	1	......
Maine	1,534	25	......	......	......	......	......	......	1	......	2
Nanticoke	666	13	......	......	......	......	......	......	......	......	1
Sanford	3,514	42	......	1	......	1	......	......	......	......	1
Triangle	1,727	21	......	......	......	......	......	......	......	......	1
Union	5,707	83	......	3	......	......	......	......	1	......	6
Vestal	1,850	34	......	......	......	......	......	......	3	1	1
Windsor	2,967	35	......	......	......	......	......	......	2	1	2

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Cattaraugus county	65,648	810	5	18		1	4	2	2	30	40
OLEAN	9,462	130	3	1						9	6
Allegany	3,692	45		1						4	
Ashford	1,645	22								1	2
Carrollton	2,035	18		1					1		
Cold Spring	1,030	12									
Conewango	1,224	16									2
Dayton	1,691	18		1						1	
East Otto	1,138	11									
Elko	571	3									
Ellicottville	2,038	20									1
Farmersville	1,043	13									
Franklinville	2,514	28									1
Freedom	1,209	13					1			1	
Great Valley	1,697	22									2
Hinsdale	1,218	14									1
Humphrey	794	8								2	
Ischua	832	10		1							
Leon	1,003	10									
Little Valley	1,616	24						1			
Lyndon	609	4		1							
Machias	1,557	39		1			1				1
Mansfield	968	18									2
Napoli	967	15									2
New Albion	2,372	31		4						1	4
Olean	4,854	60	2	2			1			1	4
Otto	1,105	11									
Perrysburgh	1,216	13									

Persia	1,940	34	......	1	......	......	......	......	......	1	4
Portville	2,319	15	......	2	......	......	......	......	......	......	......
Randolph	2,605	35	......	......	......	......	......	......	......	3	4
Red House	973	14	......	2	......	......	......	......	......	1	......
Salamanca	4,251	49	......	......	......	1	1	1	1	5	3
Salamanca	923	12	......	......	......	......	......	......	......	......	......
South Valley	713	1	......	......	......	......	......	......	......	......	1
Yorkshire	1,738	22	......	......	......	......	......	......	......	......	......
Cayuga county	66,234	1,027	3	18	......	3	7	13	17	56	77
AUBURN	30,345	520	2	12	......	......	6	12	11	40	52
Aurelius	1,563	33	......	1	......	......	......	......	......	1	3
Brutus	2,582	32	......	......	......	......	......	1	......	......	2
Cato	1,624	16	......	......	......	......	......	......	......	1	2
Conquest	1,360	13	......	1	......	......	......	......	......	......	......
Fleming	1,076	19	......	......	......	......	......	......	......	......	1
Genoa	2,075	18	......	......	......	1	......	......	......	......	......
Ira	1,668	33	......	2	......	......	......	......	2	1	4
Ledyard	1,909	17	......	......	......	......	......	......	......	3	1
Locke	1,079	23	......	1	......	1	......	......	......	1	......
Mentz	1,914	31	......	......	......	......	......	......	2	......	1
Montezuma	991	14	1	......	......	......	......	......	......	1	2
Moravia	2,373	37	......	1	......	1	......	......	......	1	......
Niles	1,402	22	......	......	......	......	......	......	1	......	......
Owasco	1,331	14	......	......	......	......	......	......	......	1	......
Scipio	1,657	33	......	......	......	......	......	......	......	......	2
Sempronius	896	12	......	......	......	......	......	......	......	......	......
Sennett	1,440	37	......	......	......	......	......	......	......	4	2
Springport	1,770	16	......	......	......	......	......	......	......	......	2
Sterling	2,516	37	......	......	......	......	......	......	1	1	2
Summer Hill	779	8	......	......	......	......	......	......	......	......	......
Throop	1,038	11	......	......	......	......	......	......	......	......	......
Venice	1,448	21	......	......	......	......	......	......	......	1	1
Victory	1,398	15	......	......	......	......	1	......	......	......	......
Chautauqua county	88,314	1,165	2	28	......	4	1	24	7	56	79
DUNKIRK	11,616	184	1	6	......	3	......	12	1	10	12
JAMESTOWN	22,892	280	......	9	......	......	......	5	1	17	32
Arkright	918	15	......	......	......	......	......	......	......	......	1

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Chautauqua county—(*Continued*)											
Busti	2,192	18	......	......	......	......	......	1	1	3	......
Carroll	1,684	22	......	......	......	......	......	......	......	3	1
Charlotte	1,406	17	......	1	......	......	......	......	......	1	1
Chautauqua	3,590	64	......	2	......	......	......	......	......	......	3
Cherry Creek	1,745	26	......	......	......	......	......	......	......	1	1
Clymer	1,229	10	......	......	......	......	......	......	......	1	1
Dunkirk	454	......	......	......	......	......	......	......	......	......	......
Ellery	1,628	16	......	......	......	......	......	......	......	3	2
Ellicott	3,118	22	......	......	......	......	......	......	......	3	1
Ellington	1,330	25	......	......	......	......	......	......	......	......	2
Fredonia	4,127	88	......	......	......	1	......	5	1	4	7
French Creek	1,014	3	......	......	......	......	......	......	......	......	......
Gerry	1,198	19	......	......	......	......	......	......	1	......	1
Hanover	4,778	58	......	2	......	......	......	......	1	1	3
Harmony	2,988	36	......	1	......	......	......	......	......	3	2
Kiantone	491	......	......	......	......	......	......	......	......	......	......
Mina	1,038	13	......	......	......	......	......	1	......	......	1
Poland	1,613	22	......	1	......	......	......	......	......	1	1
Pomfret	2,186	18	......	......	......	......	......	......	......	......	......
Portland	2,690	41	......	1	......	......	......	......	......	......	2
Ripley	2,256	31	......	......	......	......	......	......	......	1	......
Sheridan	1,633	16	......	......	......	......	......	......	1	1	......
Sherman	1,560	22	......	......	......	......	......	......	......	......	1
Stockton	1,852	21	......	......	......	......	1	......	......	......	1
Villenova	1,206	22	......	......	......	......	......	......	......	......	......
Westfield	1,452	23	......	2	......	......	......	......	......	......	1
Westfield	2,430	34	1	3	......	......	......	......	......	3	2

Chemung county	**54,063**	**806**	**5**	**24**	**1**	**1**	**11**	**2**	**2**	**39**	**60**
ELMIRA	35,672	537	5	17	1	1	7	2	1	24	51
Ashland	954	11	......	......	......	......	......	......	......	......	......
Baldwin	664	7	......	......	......	......	1	......	......	......	......
Big Flats	1,705	30	......	......	......	......	1	......	......	......	3
Catlin	1,109	10	......	1	......	......	......	......	......	......	1
Chemung	1,500	16	......	2	......	......	......	......	......	......	1
Elmira	1,260	21	......	......	......	......	......	......	......	1	......
Erin	996	7	......	......	......	......	......	......	......	......	......
Horseheads	4,944	91	......	3	......	......	1	......	......	10	4
Southport	2,201	28	......	......	......	......	......	......	1	3	......
Van Etten	1,406	25	......	......	......	......	1	......	......	1	......
Veteran	1,652	23	......	1	......	......	......	......	......	......	......
Chenango county	**36,568**	**632**	**1**	**6**	**1**	**2**	**4**	**2**	**2**	**26**	**30**
Afton	1,920	30	......	......	......	......	......	......	......	1	2
Bainbridge	1,991	41	......	......	......	......	......	......	......	3	3
Columbus	997	10	......	......	......	......	1	......	......	......	......
Coventry	987	12	......	1	......	......	1	......	......	......	1
German	423	4	......	......	......	......	......	......	......	......	......
Greene	3,152	63	......	......	......	......	......	......	......	2	2
Guilford	2,208	43	......	......	......	......	......	......	......	......	......
Lincklaen	646	8	......	......	......	......	......	......	......	......	1
McDonough	907	17	......	1	......	......	......	......	......	......	1
New Berlin	2,525	50	......	......	......	......	......	......	1	5	1
North Norwich	801	14	1	......	......	......	......	1	......	......	......
Norwich	1,238	17	......	......	......	......	......	......	......	......	......
Norwich	5,766	103	......	1	1	2	......	......	......	8	9
Otselic	1,234	20	......	1	......	......	1	......	......	1	......
Oxford	3,545	59	......	1	......	......	......	1	......	1	4
Pharsalia	780	15	......	......	......	......	......	......	......	......	2
Pitcher	751	6	......	......	......	......	......	......	1	......	......
Plymouth	1,026	9	......	......	......	......	......	......	......	......	......
Preston	662	13	......	......	......	......	......	......	......	......	1
Sherburne	2,614	50	......	......	......	......	......	......	......	2	2
Smithville	1,105	20	......	......	......	......	......	......	......	1	1
Smyrna	1,290	28	......	1	......	......	1	......	......	2	......

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Clinton county	47,430	510	2	9	1	......	1	4	10	52	36
Altona	2,465	15	1	......	......	......	......	......	......	1	1
Ausable	2,195	50	......	1	......	......	......	2	......	1	7
Beekmantown	2,067	36	......	......	......	......	......	......	......	3	1
Black Brook	1,933	24	......	......	......	......	......	......	2	2	1
Champlain	4,748	34	......	3	......	......	......	......	......	3	......
Chazy	2,796	35	......	......	......	......	......	......	......	2	4
Clinton	1,574	12	......	......	......	......	......	......	......	2	......
Dannemora	3,720	26	......	......	......	......	......	1	......	......	5
Ellenburgh	3,248	6	......	......	......	......	......	1	......	3	......
Mooers	3,572	27	......	1	......	......	1	......	1	......	1
Peru	2,372	20	......	......	......	......	......	......	......	......	1
Plattsburgh	3,178	12	......	......	......	......	......	......	......	2	1
Plattsburgh	8,434	157	......	2	......	......	......	......	3	30	12
Saranac	3,463	38	1	2	1	......	......	......	4	1	......
Schuyler Falls	1,665	18	......	......	......	......	......	......	......	2	2
Columbia county	43,211	807	1	25	......	2	8	2	8	29	53
HUDSON	9,528	203	......	9	......	......	......	1	3	13	24
Ancram	1,238	20	......	1	......	......	......	......	......	......	......
Austerlitz	974	15	......	......	......	......	......	......	......	......	......
Canaan	1,307	16	......	1	......	......	......	......	......	......	1
Chatham	3,537	68	1	1	......	......	5	......	......	2	......
Claverack	4,416	83	......	4	......	......	......	......	1	4	4
Clermont	812	13	......	1	......	......	......	......	4	1	......
Copake	1,277	13	......	......	......	......	......	......	......	......	......
Gallatin	823	16	......	......	......	......	......	......	......	......	2
Germantown	1,686	28	......	1	......	......	1	......	......	1	2

Ghent	2,698	58	......	2	......	......	1	......	......	2	7
Greenport	1,191	20	......	......	......	......	......	......	......	......	......
Hillsdale	1,390	21	......	......	......	1	......	......	......	......	1
Kinderhook	3,333	61	......	......	......	......	......	......	......	1	4
Livingston	1,707	35	......	2	......	......	......	......	......	......	2
New Lebanon	1,556	33	......	......	......	......	1	......	......	......	3
Stockport	2,719	45	......	1	......	1	......	......	......	3	1
Stuyvesant	2,125	28	......	1	......	......	......	1	......	......	2
Taghkanic	894	21	......	1	......	......	......	......	......	2	......
Cortland county	**27,576**	**382**	**1**	**9**	**1**	**4**	......	......	**3**	**20**	**23**
Cincinnatus	912	15	......	......	......	......	......	......	......	2	2
Cortlandville	2,868	43	......	1	......	......	......	......	1	1	2
CORTLAND	9,014	117	......	3	1	3	......	......	3	7	8
Cuyler	991	9	......	......	......	1	......	......	......	......	2
Freetown	610	12	......	......	......	......	......	......	......	......	......
Harford	753	14	......	......	......	......	......	......	......	1	......
Homer	1,522	23	......	......	......	......	......	......	......	1	1
Homer	2,381	36	......	3	......	......	......	......	......	4	1
Lapeer	538	6	......	......	......	......	......	......	......	......	......
Marathon	1,664	21	1	......	......	......	......	......	......	......	1
Preble	857	16	......	1	......	......	......	......	......	......	1
Scott	852	13	......	......	......	......	......	......	......	1	......
Solon	622	10	......	......	......	......	......	......	......	1	......
Taylor	762	7	......	......	......	......	......	......	......	......	......
Truxton	1,217	15	......	1	......	......	......	......	......	1	2
Virgil	1,326	16	......	......	......	......	......	......	......	1	2
Willett	687	9	......	......	......	......	......	......	......	......	1
Delaware county	**46,413**	**614**	**3**	**20**	......	**6**	**2**	**1**	**6**	**31**	**30**
Andes	1,927	17	......	......	......	......	......	......	......	1	......
Bovina	932	12	......	1	......	......	......	......	......	......	......
Colchester	3,156	40	......	3	......	......	......	......	......	4	......
Davenport	1,620	23	1	......	......	......	......	......	......	......	5
Delhi	3,243	51	......	2	......	......	......	......	......	4	2
Deposit	1,747	25	......	......	......	......	......	......	......	......	1
Franklin	2,529	44	1	2	......	......	......	......	......	1	5
Hamden	1,378	13	......	......	......	......	......	......	......	1	......
Hancock	5,308	40	......	......	......	4	1	......	......	3	2

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Delaware county—(*Continued*)											
Harpersfield	1,221	13									
Kortright	1,475	16								1	1
Masonville	1,245	17									2
Meredith	1,508	11									
Middletown	3,619	51		2				1		4	2
Roxbury	2,134	28								2	
Sidney	4,023	82		4					6	2	6
Stamford	1,997	41								1	3
Tompkins	2,482	21		2			1			1	
Walton	4,869	69	1	4		2				6	1
Dutchess county	81,670	1,460	5	28	7	8	26	11	17	76	129
POUGHKEEPSIE	24,029	462	1	11	3	1	14	1	3	32	40
Amenia	2,374	52								2	4
Beekman	1,071	17									1
Clinton	1,370	25					1				
Dover	1,959	38					1		1		6
East Fishkill	1,970	32		1			1				2
Fishkill	13,016	240	1	5	3		6	5	6	11	34
Hyde Park	2,806	51		1						3	2
La Grange	1,304	19		1							2
Milan	950	12					1	1		1	1
North East	2,047	31				1		1		2	2
Pawling	1,921	30	1						1	2	2
Pine Plains	1,263	21		1							3
Pleasant Valley	1,483	34								3	1
Poughkeepsie	5,943	66		1							2
Red Hook	3,895	68		1					4	3	7

Rhinebeck	3,472	58				1	1			1	5
Stanford	1,624	28						1			2
Union Vale	945	16	1							1	2
Wappingers	1,692	31								3	
Wappingers Falls	3,504	70			1			1	2	11	7
Washington	3,032	59	1	1			1	1		1	4
Erie county	**483,686**	**6,029**	**33**	**104**	**1**	**37**	**64**	**42**	**88**	**608**	**489**
BUFFALO	352,387	4,999	31	90	1	31	56	38	73	549	427
Tonawanda	7,421	86	1	1			2	1	1	6	9
Alden	2,396	42								1	3
Amherst	4,223	62		1		2			1	8	7
Aurora	4,015	56		1						1	1
Boston	1,398	16							2		
Brant	2,005	33		1		1	1		2	4	2
Cheektowaga	5,156	40		1					2	1	2
Clarence	2,948	30							1		4
Colden	1,260	21		1						2	1
Collins	3,753	42								3	3
Concord	4,086	41		1		1		1		1	3
East Hamburgh	2,350	33		1		1				2	2
Eden	2,368	31								1	2
Elma	2,202	22							1	2	
Evans	2,795	41								1	2
Grand Island	1,036	19		1						1	
Hamburgh	4,673	81						1	2	5	4
Holland	1,434	26					1			1	1
Lancaster	8,757	135		4			2		1	12	5
Marilla	1,441	30					1				1
Newstead	3,844	39		1					2	1	3
North Collins	2,362	31								2	3
Sardinia	1,548	14									1
Tonawanda	1,205										
Wales	1,220	10									
West Seneca	5,363	49	1			1	1	1		4	3
Essex county	**30,707**	**485**	**1**	**8**		**2**			**2**	**24**	**86**
Chesterfield	2,362	52								2	2
Crown Point	2,112	42								3	4

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Essex county—(*Continued*)											
Elizabethtown	1,131	16	1	1	......	......	......	......	......	1	1
Essex	1,333	16	......	......	......	......	......	......	......	1	1
Jay	1,744	34	......	......	......	......	......	......	......	4	4
Keene	1,394	14	......	......	......	......	......	......	......	......	......
Lewis	1,123	7	......	......	......	......	......	......	......	......	......
Minerva	1,052	1	......	......	......	......	......	......	......	......	......
Moriah	4,447	72	......	1	......	......	......	......	2	3	8
Newcomb	507	6	......	......	......	......	......	......	......	......	......
North Elba	1,986	45	......	2	......	......	......	......	......	1	4
North Hudson	544	5	......	......	......	......	......	......	......	......	......
St. Armand	769	9	......	......	......	......	......	......	......	......	3
Schroon	1,272	18	......	2	......	......	......	......	......	......	1
Ticonderoga	5,048	51	......	......	......	......	......	......	......	7	4
Westport	1,727	24	......	......	......	......	......	......	......	1	3
Willsborough	1,522	12	......	1	......	2	......	......	......	1	1
Wilmington	634	11	......	1	......	......	......	......	......	......	......
Franklin county	**42,853**	**672**	**3**	**10**	......	**2**	**2**	**1**	**18**	**30**	**90**
Altamont	3,045	58	......	3	......	1	1	......	3	1	6
Bangor	2,221	17	......	......	......	......	......	......	......	1	......
Belmont	2,414	22	......	......	......	......	......	......	1	......	1
Bombay	2,742	44	1	......	......	......	......	......	......	......	8
Brandon	938	9	......	......	......	......	......	......	......	......	......
Brighton	706	9	......	......	......	......	......	......	......	......	3
Burke	1,936	14	......	......	......	......	......	......	......	......	2
Chateaugay	2,723	19	......	......	......	......	......	......	......	1	1
Constable	1,266	34	......	......	......	......	......	......	......	2	4
Dickinson	1,691	56	......	......	......	......	......	......	......	......	7

Duane	312	4	......	......	......	......	......	......	......	1	......
Fort Covington	2,043	38	......	......	......	......	......	1	2	......	2
Franklin	1,501	18	1	1	......	1	1	......	......	......	1
Harrietstown	3,390	96	......	3	......	......	......	......	1	9	41
Malone	5,935	104	......	2	......	......	......	......	9	9	5
Malone	4,074	48	......	......	......	......	......	......	2	3	4
Moira	2,484	39	......	1	......	......	......	......	......	1	3
Santa Clara	580	4	1	......	......	......	......	......	......	......	......
Waverly	1,615	24	......	......	......	......	......	......	......	1	......
Westville	1,237	15	......	......	......	......	......	......	......	1	2
Fulton county	42,842	534	1	16	......	1	3	......	4	17	39
GLOVERSVILLE	18,349	222	1	9	......	1	1	......	2	5	13
Bleecker	603	6	......	......	......	......	......	......	......	......	......
Broadalbin	1,946	29	......	......	......	......	......	......	1	......	3
Caroga	470	11	......	......	......	......	1	......	......	1	1
Ephratah	1,566	31	......	......	......	......	......	......	......	2	......
JOHNSTOWN	10,130	109	......	7	......	......	1	......	......	8	12
Johnstown	2,661	35	......	......	......	......	......	......	1	......	1
Mayfield	2,136	27	......	......	......	......	......	......	......	1	2
Northampton	2,226	40	......	......	......	......	......	......	......	......	3
Oppenheim	1,258	9	......	......	......	......	......	......	......	......	3
Perth	667	10	......	......	......	......	......	......	......	......	1
Stratford	830	5	......	......	......	......	......	......	......	......	......
Genesee county	34,561	550	2	7	......	......	......	1	28	21	42
Alabama	1,957	29	......	......	......	......	......	......	......	1	......
Alexander	1,503	28	......	......	......	......	......	......	......	......	3
Batavia	9,180	148	1	4	......	......	......	......	20	8	14
Batavia	2,250	32	......	......	......	......	......	......	......	2	4
Bergen	1,669	23	......	......	......	......	......	......	......	1	5
Bethany	1,512	31	......	......	......	......	......	......	......	1	2
Byron	1,330	22	......	......	......	......	......	......	1	......	1
Darien	1,887	29	......	1	......	......	......	......	......	......	......
Elba	1,526	18	......	......	......	......	......	......	......	1	......
Le Roy	3,144	64	1	2	......	......	......	1	3	5	8
Le Roy	1,679	29	......	......	......	......	......	......	......	......	1
Oakfield	1,589	17	......	......	......	......	......	......	......	......	......

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Genesee county—(*Continued*)											
Pavilion	1,542	20	......	......	......	......	......	......	1	......	1
Pembroke	2,425	46	......	......	......	......	......	......	1	2	1
Stafford	1,338	14	......	......	......	......	......	......	2	......	2
Greene county	31,478	589	3	13	......	......	......	10	5	29	50
Ashland	692	14	......	......	......	......	......	......	......	......	1
Athens	2,891	61	......	......	......	......	......	1	......	5	7
Cairo	2,176	59	......	1	......	......	......	1	......	......	1
Catskill	3,082	53	......	......	......	......	......	1	......	2	4
Catskill	5,484	94	1	1	......	......	......	2	......	1	14
Coxsackie	4,102	69	2	3	......	......	......	2	4	9	8
Durham	1,636	41	......	2	......	......	......	......	......	1	3
Greenville	1,651	31	......	......	......	......	......	......	1	......	3
Halcott	350	7	......	......	......	......	......	......	......	2	1
Hunter	2,788	58	......	2	......	......	......	2	......	2	3
Jewett	1,028	10	......	......	......	......	......	......	......	......	1
Lexington	1,153	22	......	1	......	......	......	......	......	3	2
New Baltimore	2,283	37	......	2	......	......	......	1	......	2	1
Prattsville	775	12	......	1	......	......	......	......	......	......	1
Windham	1,387	21	......	......	......	......	......	......	......	2	......
Hamilton county	4,947	51	......	1	......	2	......	......	......	2	3
Arietta	247	5	......	......	......	......	......	......	......	......	......
Benson	299	2	......	......	......	1	......	......	......	......	......
Hope	463	4	......	......	......	......	......	......	......	......	......
Indian Lake	1,219	13	......	1	......	1	......	......	......	......	......
Lake Pleasant	469	......	......	......	......	......	......	......	......	1	1

Long Lake	1,023	12									1
Morehouse	319	5								1	1
Wells	908	10									
Herkimer county	51,049	702	8	25	1	1	4	1	14	29	58
Columbia	1,268	25					1				
Danube	1,043	7									2
Fairfield	1,390	14	1								1
Frankfort	4,472	60					1			3	2
German Flats	3,525	63		1		1				4	3
Ilion	5,138	52		1			1			3	3
Herkimer	6,748	90	1	5	1				3	4	14
Litchfield	931	13									
LITTTE FALLS	10,381	166	1	13				1	7	7	18
Little Falls	718	4								1	
Manheim	2,648	38		2					1	1	3
Newport	1,613	22									
Norway	680	6									1
Ohio	660										
Russia	2,025	26		1					1		
Salisbury	1,426	34								3	1
Schuyler	1,365	15		1					2	1	1
Stark	1,030	21		1							
Warren	1,240	21								1	1
Webb	920	6					1				1
Wilmurt	353	2									1
Winfield	1,475	17								1	1
Jefferson county	76,748	1,199	7	35		1	15	2	5	69	84
WATERTOWN	21,696	397	3	22		1	7	2	4	36	34
Adams	3,081	50								3	3
Alexandria	3,894	44									4
Antwerp	3,008	47					1			3	7
Brownville	3,698	58								1	3
Cape Vincent	2,882	49					2			5	5
Champion	2,525	48		1					1	3	
Clayton	4,313	63		2						6	7
Ellisburg	3,888	61	1							1	1
Henderson	1,615	21									2

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Jefferson county (*Continued*)											
Hounsfield	2,772	33	2	......	......	......	......	......	......	......	2
Le Ray	2,576	40	......	2	......	......	......	......	......	2	1
Lorraine	1,019	18	......	......	......	......	......	......	......	......	1
Lyme	2,200	18	......	......	......	......	......	......	......	1	......
Orleans	2,367	29	......	2	......	......	......	......	......	2	......
Pamelia	1,031	11	......	......	......	......	......	......	......	......	......
Philadelphia	1,750	28	......	......	......	......	......	......	......	......	2
Rodman	1,212	11	......	......	......	......	......	......	......	......	......
Rutland	1,885	32	......	1	......	......	......	......	......	......	2
Theresa	2,130	29	1	......	......	......	1	......	......	1	4
Watertown	1,159	12	......	1	......	......	......	......	......	......	......
Wilna	5,172	91	......	4	......	......	4	......	......	4	5
Worth	875	9	......	......	......	......	......	......	......	1	1
Kings county *											
Lewis county	27,427	382	2	7	......	......	6	......	8	16	24
Croghan	3,159	33	......	......	......	......	......	......	......	......	4
Denmark	2,193	36	......	......	......	......	1	......	......	1	2
Diana	2,083	25	......	1	......	......	......	......	2	1	1
Greig	1,100	14	......	......	......	......	......	......	......	3	2
Harrisburg	770	12	......	1	......	......	......	......	......	......	1
High Market	593	6	......	......	......	......	1	......	......	......	......
Lewis	917	19	......	......	......	......	......	......	1	......	......
Leyden	1,629	35	......	......	......	......	......	......	......	1	2
Lowville	3,746	65	......	4	......	......	1	......	......	4	4
Lyonsdale	1,371	14	1	......	......	......	......	......	......	......	......

Martinsburgh	1,845	30					1			2	1
Montague	766	5								2	
New Bremen	1,775	27									3
Osceola	629	8								1	
Pinckney	934	5									
Turin	1,157	11									1
Watson	981	13		1			2			1	
West Turin	1,779	24	1								3
Livingston county	**37,059**	**447**		**7**					**8**	**9**	**84**
Avon	3,071	42							1		3
Caledonia	2,072	22									3
Conesus	1,149	18									1
Geneseo	3,613	52									6
Groveland	1,949	41								1	7
Leicester	1,415	17									
Lima	2,279	28								1	1
Livonia	2,788										
Mt. Morris	3,715	45							1	1	5
North Dansville	328	1									
Dansville	3,633	62		5						2	2
Nunda	2,397	45		2					1	1	
Ossian	780	4									
Portage	1,029	7									1
Sparta	1,189	6									2
Springwater	2,016	22								2	1
West Sparta	906	6								1	
York	2,730	29									2
Madison county	**40,545**	**591**	**2**	**6**		**2**	**7**	**5**	**8**	**23**	**40**
Brookfield	2,726	47	1	1				1		3	4
Cazenovia	3,830	51		1						3	4
De Ruyter	1,410	32									1
Eaton	2,705	41									3
Fenner	911	7									
Georgetown	998	18		1							2
Hamilton	3,744	60		1			3			2	4
Lebanon	1,243	21				1				1	
Lenox	4,679	58	1					2	1	3	1

---

* See the city of New York.

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Madison county—(*Continued*)											
Lincoln	1,052	17				1				2	
Oneida	6,364	86		1			1		1	3	13
Oneida	1,174	26						2		3	2
Madison	2,024	18								2	1
Nelson	1,296	30					1				2
Smithfield	989	13					1				
Stockbridge	1,622	20							1	1	
Sullivan	3,778	46		1			1				3
Monroe county	217,854	3,022	1	35		16	13	25	52	189	312
ROCHESTER	162,608	2,271	1	30		11	11	21	47	156	263
Brighton	3,815	42								1	2
Chili	2,099	15						1			1
Clarkson	1,581	20								1	1
Gates	3,468	44								1	2
Greece	5,579	83		1				1		12	4
Hamlin	2,188	27					1			4	
Henrietta	2,062	24				3				1	1
Irondequoit	2,863	43						1		1	3
Mendon	2,760	50		1						2	
Ogden	2,616	42							2	2	1
Parma	2,814	38		1					2		3
Penfield	2,857	35								1	5
Perinton	4,703	72		2		2			1		10
Pittsford	2,373	27					1				2
Riga	1,864	31								1	
Rush	1,491	27									
Sweden	1,345	16								2	2

Brockport	3,398	54	......	......	......	......	......	......	......	......	10
Webster	3,289	39	......	......	......	......	......	1	......	3	1
Wheatland	2,071	22	......	......	......	......	......	......	......	1	1
Montgomery county	47,488	619	2	6	......	3	......	3	13	33	46
AMSTERDAM	20,929	296	......	3	......	1	......	2	9	25	30
Amsterdam	3,202	31	......	......	......	......	......	......	......	1	3
Canajoharie	3,888	43	1	......	......	......	......	......	1	......	1
Charleston	1,052	9	......	1	......	......	......	......	......	......	......
Florida	1,988	20	......	......	......	......	......	......	......	1	......
Glen	2,281	23	......	......	......	......	......	......	......	1	1
Minden	2,097	29	......	1	......	1	......	1	......	......	1
Fort Plain	2,444	39	......	1	......	1	......	......	......	2	3
Mohawk	2,711	47	......	......	......	......	......	......	......	2	4
Palatine	2,569	29	......	......	......	......	......	......	......	1	......
Root	1,653	11	......	......	......	......	......	......	......	......	......
St. Johnsville	2,674	42	1	......	......	......	......	......	3	......	3
Nassau county	55,448	745	1	5	5	1	4	1	21	76	64
Hempstead	27,066	379	1	4	1	......	2	......	8	57	28
North Hempstead	12,048	165	......	1	3	......	2	1	9	10	16
Oyster Bay	16,334	201	......	......	1	1	......	......	4	9	20
New York, City of	3,437,202	70,870	305	718	219	466	816	584	2,275	3,851	8,162
Borough of Manhattan	1,850,093	38,879	178	342	68	256	366	280	1,085	1,887	4,260
Borough of Bronx	200,507	4,347	23	30	36	60	104	38	191	168	1,017
Borough of Brooklyn	1,166,582	23,507	92	301	58	130	310	235	863	1,502	2,444
Borough of Queens	152,999	2,759	8	32	51	20	21	21	77	203	288
Borough of Richmond	67,021	1,378	4	13	6	......	15	10	59	86	153
Niagara county	74,961	1,080	7	31	......	3	12	11	16	63	83
LOCKPORT	16,581	266	2	3	......	......	......	3	8	11	27
NIAGARA FALLS	19,457	308	3	24	......	2	10	3	7	21	24
Cambria	1,880	24	......	......	......	......	......	1	......	1	1
Hartland	2,728	28	......	......	......	......	......	......	......	......	......
Lewiston	3,221	46	......	......	......	......	......	1	......	5	5
Lockport	2,585	19	......	......	......	......	......	......	1	......	......
Newfane	3,248	46	......	......	......	......	......	......	......	1	6
Niagara	1,066	20	......	......	......	......	......	......	......	1	......
Pendleton	1,364	21	......	......	......	......	1	......	......	1	1

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Niagara county—(*Continued*)											
Porter	2,235	33	1	1	......	......	......	......	......	......	1
Royalton	4,797	72	......	1	......	......	......	......	......	3	5
Somerset	1,923	34	......	1	......	1	......	1	......	......	1
Wheatfield	1,926	21	......	......	......	......	......	......	......	1	......
NORTH TONAWANDA	9,069	103	1	1	......	......	1	2	......	16	10
Wilson	2,881	39	......	......	......	......	......	......	......	2	2
Oneida county	**132,800**	**2,275**	**7**	**29**	**3**	**3**	**24**	**20**	**50**	**153**	**177**
UTICA	56,383	1,135	1	8	2	2	17	20	40	95	103
ROME	15,243	239	4	1	......	1	3	......	1	19	17
Annsville	1,744	33	......	......	......	......	......	......	......	1	......
Augusta	2,029	27	......	......	......	......	......	......	1	......	......
Ava	706	4	......	......	......	......	......	......	......	......	......
Boonville	3,332	66	......	......	1	......	......	......	......	8	6
Bridgewater	931	17	......	1	......	......	......	......	......	1	1
Camden	3,745	52	......	1	......	......	......	......	......	1	6
Deerfield	1,756	19	......	......	......	......	......	......	1	1	2
Florence	1,207	13	......	......	......	......	......	......	......	2	1
Floyd	785	6	......	......	......	......	......	......	......	......	......
Forestport	1,562	27	......	1	......	......	......	......	......	4	......
Kirkland	4,545	67	......	3	......	......	......	......	......	1	6
Lee	1,571	21	......	......	......	......	......	......	......	1	......
Marcy	1,398	26	......	......	......	......	......	......	......	......	2
Marshall	1,566	22	......	1	......	......	......	......	......	......	1
New Hartford	5,230	79	......	......	......	......	......	......	1	2	4
Paris	2,626	41	1	1	......	......	1	......	......	1	4
Remsen	1,208	22	1	2	......	......	1	......	......	......	2
Sangerfield	1,107	36	......	2	......	......	1	......	......	......	2

Steuben	902	7	......	......	......	......	1	......	......	1	1
Trenton	2,628	31	......	......	......	......	......	......	......	......	1
Vernon	2,784	37	......	2	......	......	......	......	......	1	3
Verona	3,875	57	......	......	......	......	......	......	1	3	2
Vienna	2,218	48	......	......	......	......	......	......	......	1	5
Waterville	1,571	......	......	......	......	......	......	......	......	......	......
Western	1,621	28	......	......	......	......	......	......	......	......	1
Westmoreland	2,192	29	......	3	......	......	......	......	......	3	......
Whitestown	6,235	86	......	3	......	......	......	......	5	7	7
Onondaga county	168,735	2,555	10	42	4	3	20	27	29	151	227
SYRACUSE	108,374	1,642	7	31	4	2	18	19	21	119	172
Camillus	2,453	45	......	......	......	......	1	......	......	3	4
Cicero	2,611	28	......	......	......	1	......	1	......	......	......
Clay	2,578	43	......	1	......	......	......	......	......	......	3
Dewitt	5,435	66	......	3	......	......	......	2	......	5	4
Elbridge	3,327	55	1	......	......	......	......	1	1	2	2
Fabius	1,686	25	......	......	......	......	......	......	......	1	3
Geddes	4,387	65	......	1	......	......	1	......	2	7	3
La Fayette	1,892	19	......	......	......	......	......	......	......	1	......
Lysander	3,026	44	......	......	......	......	......	......	2	1	4
Baldwinsville	2,992	58	......	1	......	......	......	......	1	2	2
Manlius	5,374	90	1	2	......	......	......	2	......	3	3
Marcellus	2,581	43	......	......	......	......	......	......	......	1	1
Onondaga	5,580	117	1	2	......	......	......	......	1	2	9
Otisco	1,202	15	......	......	......	......	......	......	......	......	1
Pompey	2,546	37	......	......	......	......	......	......	......	......	3
Salina	3,745	52	......	......	......	......	......	1	......	2	4
Skaneateles	4,205	57	......	1	......	......	......	......	......	1	6
Spafford	1,159	14	......	......	......	......	......	......	......	1	1
Tully	1,465	17	......	......	......	......	......	......	......	......	......
Van Buren	2,117	23	......	......	......	......	......	1	1	......	2
Ontario county	49,605	709	1	12	......	6	......	4	......	39	47
Bristol	1,310	19	......	......	......	......	......	......	......	......	......
Canadice	674	12	......	......	......	......	......	......	......	......	1
Canandaigua	2,133	13	......	......	......	......	......	......	......	2	1
Canandaigua	6,151	82	......	1	......	......	......	......	......	8	7
East Bloomfield	1,940	22	......	1	......	......	......	......	......	1	2

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Ontario county—(*Continued*)											
Farmington	1,607	30	......	1	......	......	......	......	......	......	1
Geneva	1,091	18	......	......	......	1	......	......	......	1	......
GENEVA	10,433	154	......	......	......	2	......	3	......	15	11
Gorham	2,131	25	......	......	......	......	......	......	......	1	3
Hopewell	1,550	22	......	......	......	......	......	......	......	......	3
Manchester	4,733	90	......	2	......	......	......	1	......	5	5
Naples	2,370	33	......	1	......	1	......	......	......	......	......
Phelps	4,788	76	1	2	......	1	......	......	......	4	4
Richmond	1,381	22	......	1	......	......	......	......	......	......	1
Seneca	2,654	38	......	......	......	......	......	......	......	1	5
South Bristol	1,104	6	......	1	......	1	......	......	......	......	......
Victor	2,249	24	......	......	......	......	......	......	......	1	......
West Bloomfield	1,306	23	......	2	......	......	......	......	......	......	3
Orange county	103,859	1,804	10	27	3	3	13	23	34	105	188
NEWBURGH	24,943	551	2	11	1	......	7	6	10	40	79
MIDDLETOWN	14,522	266	2	2	1	......	3	7	5	12	34
Blooming Grove	2,188	42	......	2	......	......	......	......	......	2	3
Chester	2,186	25	......	1	......	......	......	......	......	......	1
Cornwall	4,258	63	......	......	......	......	......	......	......	1	2
Crawford	1,778	29	......	......	......	......	......	......	......	......	2
Deerpark	1,932	17	......	......	......	......	......	......	......	1	......
Port Jervis	9,385	163	......	3	......	1	......	5	2	12	12
Goshen	4,564	109	......	......	......	......	......	......	1	4	16
Greenville	800	13	......	......	......	......	......	......	......	......	1
Hamptonburg	1,072	17	......	......	......	......	......	......	......	1	......
Highlands	4,519	38	......	2	......	1	......	......	1	......	1

Minisink	1,505	20	......	......	......	......	......	......	......	1	1
Monroe	1,784	25	......	......	......	......	......	......	......	2	2
Montgomery	5,939	102	4	3	......	1	......	......	10	11	4
Mount Hope	1,236	18	......	......	......	......	......	......	......	......	1
Newburgh	4,246	46	......	......	......	......	......	......	1	2	6
New Windsor	2,392	47	......	......	......	......	2	1	......	3	6
Tuxedo	2,277	35	......	......	......	......	1	......	3	3	1
Wallkill	2,725	27	1	......	......	......	......	......	......	2	4
Warwick	6,403	106	1	2	1	......	......	3	1	8	8
Wawayanda	1,539	25	......	......	......	......	......	......	......	......	2
Woodbury	1,666	20	......	1	......	......	......	1	......	......	2
Orleans county	**30,164**	**452**	**2**	**7**	......	**8**	**4**	**1**	**2**	**28**	**38**
Albion	4,447	76	......	......	......	......	3	......	......	9	6
Albion	1,398	33	......	......	......	......	......	......	......	......	1
Barre	1,937	25	......	1	......	1	......	......	......	2	1
Carlton	2,338	32	......	1	......	......	......	1	......	3	2
Clarendon	1,518	29	......	1	......	......	......	......	1	......	2
Gaines	1,763	32	......	......	......	......	......	......	......	1	3
Kendall	1,616	19	......	......	......	1	1	......	......	......	2
Murray	3,656	50	1	......	......	......	......	......	......	1	6
Ridgeway	2,753	34	......	2	......	......	......	......	......	4	5
Medina	4,716	75	1	2	......	1	......	......	1	6	9
Shelby	2,108	23	......	......	......	......	......	......	......	......	......
Yates	1,884	24	......	......	......	......	......	......	......	2	1
Oswego county	**7,881**	**1,257**	**2**	**16**	**8**	......	**5**	**11**	**29**	**53**	**92**
OSWEGO	22,199	421	1	10	2	......	......	6	17	17	42
Albion	1,724	32	......	......	......	......	......	......	......	......	2
Amboy	824	16	......	1	......	......	......	......	......	2	1
Boylston	849	20	......	......	......	......	......	......	......	......	1
Constantia	2,259	25	......	......	......	......	......	......	......	1	......
Granby	5,120	89	......	1	......	......	......	......	......	6	4
Hannibal	2,473	41	1	......	......	......	......	......	2	1	4
Hastings	2,303	40	......	......	......	......	2	......	......	4	2
Mexico	3,091	72	......	......	......	......	1	......	1	1	7
New Haven	1,408	14	......	......	......	......	......	......	......	......	......
Orwell	1,149	17	......	......	......	......	......	......	......	......	......
Oswego	2,737	55	......	......	......	......	1	......	......	1	6

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Oswego county—(*Continued*)											
Palermo	1,407	31	......	1	......	......	......	......	......	1	3
Parish	1,530	15	......	......	......	......	......	......	......	......	3
Redfield	911	6	......	......	......	......	......	......	......	......	......
Richland	3,535	38	......	......	......	......	......	......	1	2	1
Sandy Creek	2,232	50	......	......	......	......	1	1	......	......	3
Schroeppel	3,012	58	......	1	1	......	......	......	......	3	1
Scriba	2,480	26	......	......	......	......	......	......	......	1	2
Volney	2,393	49	......	1	......	......	......	......	4	3	1
Fulton	5,281	112	......	......	......	......	......	4	4	10	7
West Monroe	936	11	......	1	......	......	......	......	......	......	2
Williamstown	1,028	19	......	......	......	......	......	......	......	......	......
Otsego county	48,939	765	......	14	......	......	1	......	6	25	42
Burlington	1,263	14	......	......	......	......	......	......	......	......	1
Butternuts	1,698	31	......	1	......	......	......	......	......	1	1
Cherry Valley	1,802	17	......	1	......	......	......	......	......	......	......
Decatur	559	6	......	......	......	......	......	......	......	......	......
Edmeston	1,767	23	......	......	......	......	1	......	......	......	2
Exeter	1,087	14	......	......	......	......	......	......	......	......	2
Hartwick	1,800	39	......	......	......	......	......	......	......	2	2
Laurens	1,483	31	......	1	......	......	......	......	1	......	4
Maryland	1,998	25	......	......	......	......	......	......	......	......	......
Middlefield	2,058	56	......	1	......	......	......	......	......	2	2
Milford	2,007	38	......	1	......	......	......	......	......	1	2
Morris	1,689	31	......	......	......	......	......	......	......	1	1
New Lisbon	1,225	23	......	......	......	......	......	......	......	1	1
Oneonta	1,763	18	......	......	......	......	......	......	......	......	2
Oneonta	7,147	89	......	2	......	......	......	......	4	5	8

Otego	1,817	25	......	......	......	......	......	......	......	......	1
Otsego	1,171	43	......	1	......	......	......	......	......	1	1
Cooperstown	2,368	48	......	2	......	......	....	......	......	5	3
Pittsfield	1,101	21	......	1	......	......	......	......	......	1	......
Plainfield	897	14	......	......	......	......	......	......	......	......	1
Richfield	2,526	50	......	......	......	......	......	......	......	1	3
Roseboom	1,031	16	......	2	......	......	......	......	......	......	1
Springfield	1,762	16	......	......	......	......	......	......	......	......	......
Unadilla	2,601	33	......	1	......	......	......	......	......	2	2
Westford	910	8	......	......	......	......	......	......	......	1	......
Worcester	2,409	36	......	......	......	......	......	......	1	1	2
Putnam county	13,787	249	......	3	......	......	......	1	4	9	19
Carmel	2,598	52	......	2	......	......	......	1	......	......	3
Kent	1,026	27	......	......	......	......	......	......	......	......	3
Patterson	1,644	22	......	......	......	......	......	......	......	1	2
Phillipstown	4,642	88	......	1	......	......	......	......	2	5	6
Putnam Valley	1,034	21	......	......	......	......	......	......	2	1	1
South East	2,843	39	......	......	......	......	......	......	......	2	4
Rensselaer county	121,697	2,549	9	121	9	2	9	17	51	161	318
TROY	60,651	1,528	8	76	9	2	1	13	31	133	217
Berlin	1,677	28	......	2	.....	......	......	.....	1	1	3
Brunswick	3,513	45	......	......	......	......	......	......	1	2	1
East Greenbush	2,036	30	......	......	......	......	2	......	......	1	3
Grafton	1,136	14	......	......	......	......	......	......	......	......	2
RENSSELAER	7,466	145	......	7	......	......	3	1	6	2	15
Hoosick	2,960	43	......	......	......	......	......	......	1	3	2
Hoosick Falls	5,671	106	......	8	......	......	......	......	......	1	13
Lansingburg	344	......	......	......	......	......	......	......	......	......	......
Lansingburg	12,595	224	1	17	......	......	......	2	8	12	23
Nassau	2,073	36	......	......	......	......	3	......	......	......	3
North Greenbush	4,719	75	......	3	......	......	......	1	......	2	7
Petersburgh	1,449	19	.....	......	......	......	......	......	......	......	1
Pittstown	3,236	52	......	2	......	......	......	......	......	1	6
Poestenkill	1,362	27	......	3	......	......	......	......	......	......	1
Sand Lake	2,299	31	......	2	......	......	......	......	......	1	2
Schaghticoke	2,631	36	......	1	......	......	......	......	......	......	7

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Rensselaer county—(*Continued*)											
Schodack	4,334	81	......	5	......	......	......	......	3	2	5
Stephentown	1,545	29	......	......	......	......	......	......	......	......	2
Richmond county*											
Rockland county	88,298	570	1	8	2	2	4	3	28	55	45
Clarkstown	6,305	98	......	......	......	1	3	......	1	11	3
Haverstraw	9,874	149	......	......	2	1	1	......	10	16	14
Orangetown	6,181	74	......	......	......	......	......	1	2	2	3
Nyack	4,275	75	1	1	......	......	......	1	......	7	4
Ramapo	7,502	132	......	2	......	......	......	1	9	16	15
Stony Point	4,161	42	......	......	......	......	......	......	1	3	6
St. Lawrence county	89,088	1,255	9	37	......	5	8	......	11	62	98
OGDENSBURG	12,633	205	......	5	......	4	1	......	3	20	21
Brasher	2,703	42	......	1	......	1	1	......	......	3	......
Canton	6,387	125	1	1	......	......	4	......	......	6	10
Clare	330	4	......	......	......	......	......	......	......	......	......
Clifton	1,382	25	2	1	......	......	......	......	3	1	1
Colton	1,678	35	......	3	......	......	......	......	......	......	......
De Kalb	2,723	32	1	......	......	......	......	......	......	......	2
De Peyster	936	10	......	......	......	......	......	......	......	......	......
Edwards	1,340	22	......	......	......	......	......	......	1	......	2
Fine	1,694	32	......	3	......	......	......	......	2	2	2
Fowler	1,716	34	......	......	......	......	......	......	......	7	2
Gouverneur	5,915	102	2	3	......	......	1	......	1	7	7
Hammond	1,764	17	......	......	......	......	......	......	......	......	......
Hermon	1,542	20	......	1	......	......	......	......	......	......	1

Hopkinton	2,521	29	......	2	......	......	......	......	......	......	......
Lawrence	1,963	28	......	1	......	......	......	......	......	1	3
Lisbon	5,255	51	......	1	......	......	......	......	......	1	5
Louisville	1,621	18	......	......	......	......	......	......	......	......	......
Macomb	1,374	17	1	......	......	......	......	......	......	......	......
Madrid	1,668	29	......	......	......	......	......	......	......	1	2
Massena	3,904	....	......	......	......	......	......	......	......	......	......
Morristown	1,798	18	......	1	......	......	......	......	......	1	3
Norfolk	1,911	19	1	2	......	......	......	......	......	......	3
Oswegatchie	2,368	25	......	......	......	......	......	......	......	1	2
Parishville	2,086	33	......	2	......	......	1	......	......	......	1
Pierrepont	1,885	21	......	1	......	......	......	......	......	......	......
Pitcairn	902	6	......	......	......	......	......	......	......	......	......
Potsdam	5,211	69	......	1	......	......	......	......	......	5	5
Potsdam	3,843	53	......	......	......	......	......	......	......	2	8
Rossie	1,136	15	......	......	......	......	......	......	1	......	......
Russell	2,067	29	1	1	......	......	......	......	......	......	1
Stockholm	2,826	56	......	5	......	......	......	......	......	2	7
Waddington	2,001	34	......	2	......	......	......	......	......	2	5
Saratoga county	61,089	1,061	7	18	....	2	....	9	19	41	79
Ballston Spa	3,923	47	......	......	......	......	......	......	1	2	1
Ballston	1,501	16	......	......	......	......	......	......	......	......	1
Charlton	1,109	16	......	......	......	......	......	......	......	1	......
Clifton Park	2,140	43	......	......	......	......	......	......	......	......	4
Corinth	3,104	46	......	1	......	......	......	......	......	1	3
Day	719	9	......	......	......	......	......	......	......	......	1
Edinburgh	1,032	10	......	......	......	......	......	......	......	......	1
Galway	1,350	14	......	......	......	......	......	......	1	......	1
Greenfield	1,837	31	1	......	......	......	......	......	......	......	1
Hadley	914	34	......	......	......	1	......	1	......	......	1
Halfmoon	1,906	38	......	......	......	......	......	......	......	1	2
Malta	1,322	16	......	......	......	......	......	......	......	......	2
Mechanicville	4,695	95	2	5	......	......	......	4	9	5	7
Milton	2,536	57	......	......	......	......	......	......	1	1	2
Moreau	2,999	50	1	......	......	1	......	1	......	1	3
Northumberland	1,227	12	......	......	......	......	......	......	1	......	......
Providence	607	11	......	......	......	......	......	......	......	......	1

*See the city of New York.

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Saratoga county—(*Continued*)											
Saratoga	3,999	50	......	......	......	......	......	1	......	1	11
Saratoga Springs	1,125	23	......	......	......	......	......	......	2	1	......
Saratoga Springs	12,409	275	3	6	......	......	......	......	2	15	36
Stillwater	3,489	61	......	......	......	......	......	1	1	2	4
Waterford	6,157	96	......	6	......	......	......	1	1	10	6
Wilton	989	11	......	......	......	......	......	......	......	......	1
Schenectady county	46,852	778	2	16	......	4	30	9	13	57	58
SCHENECTADY	31,682	554	1	14	......	2	27	7	11	46	46
Duanesburgh	2,428	37	......	......	......	......	......	......	......	......	3
Glenville	3,010	54	......	......	......	......	2	......	......	2	3
Niskayuna	1,327	12	......	1	......	1	......	......	......	2	1
Princetown	694	11	......	......	......	......	......	......	......	2	1
Rotterdam	7,711	110	1	1	......	1	1	2	2	5	4
Schoharie county	26,854	412	2	11	......	......	......	1	4	12	22
Blenheim	768	11	......	......	......	......	......	......	......	......	2
Broome	1,153	18	......	1	......	......	......	......	......	......	......
Carlisle	1,225	19	......	......	......	......	......	......	......	......	1
Cobleskill	3,973	60	......	......	......	......	......	1	3	3	8
Conesville	793	9	......	......	......	......	......	......	......	......	......
Esperance	1,096	29	......	......	......	......	......	......	......	1	2
Fulton	1,998	31	1	1	......	......	......	......	......	1	1
Gilboa	1,448	17	......	......	......	......	......	......	......	......	1
Jefferson	1,409	16	......	......	......	......	......	......	......	......	1
Middleburgh	2,738	43	......	4	......	......	......	......	1	4	2
Richmondville	1,719	16	......	......	......	......	......	......	......	......	1
Schoharie	2,700	43	......	2	......	......	......	......	......	......	1

Seward	1,404	28	......	2	......	......	......	......	......	......	6
Sharon	2,058	40	......	......	......	......	......	......	......	1	4
Summit	1,217	19	1	......	......	......	......	......	......	......	2
Wright	1,155	13	......	1	......	......	......	......	......	2	1
Schuyler county	**15,811**	**245**	......	**1**	......	**1**	**2**	**5**	......	**12**	**8**
Catherine	1,386	15	......	......	......	......	......	......	......		1
Cayuta	459	3	......	......	......	......	......	......	......	......	......
Dix	3,894	70	......	1	......	......	......	5	......	3	2
Hector	4,137	75	......	......	......	......	......	......	......	7	1
Montour[1]	1,623	24	......	......	......	......	......	......	......	......	1
Orange	1,391	19	......	......	......	......	1	......	......	......	......
Reading	1,335	17	......	......	......	1	......	......	......	1	2
Tyrone	1,586	22	......	......	......	......	1	......	......	1	1
Seneca county	**28,114**	**386**	......	**3**	**1**	......	......	......	**3**	**18**	**29**
Covert	1,897	31	......	......	......	......	......	......	......	......	1
Fayette	2,056	28	......	......	......	......	......	......	......	1	......
Junius	1,053	9	......	......	......	......	......	......	......	1	1
Lodi	1,636	33	......	......	......	......	......	......	......	1	1
Ovid	3,734	36	......	1	......	......	......	......	......	2	2
Romulus	2,895	42	......	......	......	......	......	......	......	1	3
Seneca Falls[2]	786	2	......	......	......	......	......	......	......	......	......
Seneca Falls	6,519	96	......	......	......	......	......	......	3	7	14
Tyre	954	11	......	......	......	......	......	......	......	......	1
Varick	1,270	17	......	......	......	......	......	......	......	1	......
Waterloo	1,058	10	......	......	......	......	......	......	......	......	2
Waterloo	4,256	71	......	2	1	......	......	......	......	4	4
Steuben county	**82,822**	**1,056**	**3**	**20**	**3**	**6**	**1**	**1**	**18**	**48**	**63**
CORNING	11,061	202	1	6	3	5	......	......	13	11	16
HORNELLSVILLE	11,918	165	1	3	......	......	......	......	1	15	14
Addison	2,637	33	......	1	......	......	1	......	......	......	......
Avoca	2,125	20	......	......	......	......	......	......	1	1	2
Bath	3,443	68	......	......	......	......	......	......	......	......	3
Bath	4,494	41	......	......	......	......	......	......	......	3	5
Bradford	771	9	......	......	......	......	......	......	......	......	......
Cameron	1,353	17	......	......	......	......	......	1	......	......	1
Campbell	1,467	18	......	......	......	......	......	......	......	......	2
Canisteo	3,432	56	......	2	......	......	......	......	......	1	......

Record of each reporting local board of health, etc.—(Continued).

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Steuben county—(*Continued*)											
Caton	1,345	10	......	......	......	......	......	......	......	1	2
Cohocton	3,197	32	......	......	......	1	......	......	......	4	2
Corning	1,937	25	......	1	......	......	......	......	1	1	1
Dansville	1,417	16	......	......	......	......	......	......	......	......	......
Erwin	1,851	26	......	2	......	......	......	......	......	......	3
Fremont	1,033	11	1	......	......	......	......	......	1	......	......
Greenwood	1,129	13	......	......	......	......	......	......	......	......	......
Hartsville	787	5	......	......	......	......	......	......	......	1	......
Hornby	959	14	......	......	......	......	......	......	......	......	3
Hornellsville	1,833	31	......	......	......	......	......	......	......	......	......
Howard	1,704	15	......	1	......	......	......	......	......	1	......
Jasper	1,430	10	......	......	......	......	......	......	......	......	......
Lindley	1,306	17	......	......	......	......	......	......	......	1	......
Prattsburgh	2,197	25	......	......	......	......	......	......	......	......	......
Pultney	1,590	19	......	......	......	......	......	......	......	1	2
Rathbone	1,059	6	......	......	......	......	......	......	......	......	1
Thurston	1,017	10	......	1	......	......	......	......	......	......	......
Troupsburgh	2,015	36	......	2	......	......	......	......	1	......	1
Tuscarora	1,301	7	......	......	......	......	......	......	......	......	1
Urbana	2,692	33	......	......	......	......	......	......	......	2	2
Wayland	2,984	33	......	......	......	......	......	......	......	3	1
Wayne	838	10	......	......	......	......	......	......	......	......	......
West Union	1,025	1	......	......	......	......	......	......	......	......	......
Wheeler	1,188	11	......	......	......	......	......	......	......	2	1
Woodhull	1,787	11	......	1	......	......	......	......	......	......	......

Suffolk county	77,582	1,879	......	16	1	......	......	18	19	77	188
Babylon	7,112	149	......	......	......	......	......	......	1	5	13
Brookhaven	14,592	289	......	6	......	......	......	1	7	12	21
East Hampton	2,724	30	......	......	......	......	......	......	......	2	1
Huntington	9,483	118	......	......	......	......	......	1	5	7	11
Islip	12,545	181	......	2	......	......	......	3	5	5	19
Riverhead	4,503	58	......	1	......	......	......	......	......	......	3
Shelter Island	1,066	14	......	......	......	......	......	1	......	2	2
Smithtown	5,863	260	......	2	......	......	......	3	......	18	44
South Hampton	9,424	94	......	2	......	......	......	2	......	3	5
Sag Harbor	1,969	82	......	......	......	......	......	1	......	18	6
Southold	8,301	104	......	3	1	......	......	1	1	5	8
Sullivan county	32,806	576	1	8	......	2	1	1	4	19	73
Bethel	2,248	39	......	......	......	......	......	......	......	3	......
Callicoon	2,054	39	......	......	......	......	......	......	......	......	2
Cochecton	1,117	14	......	......	......	......	......	......	......	1	......
Delaware	1,541	35	......	......	......	......	......	......	......	3	......
Fallsburgh	2,974	32	......	......	......	......	......	......	......	1	3
Forestburgh	625	14	......	......	......	......	......	......	......	1	......
Fremont	2,184	30	......	......	......	......	......	......	......	3	......
Highland	964	15	1	......	......	......	......	......	1	2	1
Liberty	4,568	120	......	5	......	......	......	......	1	2	50
Lumberland	809	13	......	......	......	......	......	......	......	......	......
Mamakating	3,128	57	......	3	......	1	......	......	......	1	3
Neversink	2,039	21	......	......	......	......	......	1	......	......	......
Rockland	3,426	61	......	......	......	......	1	......	2	......	3
Thompson	3,739	69	......	......	......	......	......	......	......	1	10
Tusten	890	17	......	......	......	1	......	......	......	1	1
Tioga county	27,951	457	2	7	......	1	1	4	8	18	82
Waverly	4,465	73	......	1	......	......	......	1	......	3	5
Barton	1,916	25	......	......	......	......	......	......	......	1	3
Berkshire	1,011	1	......	......	......	......	......	......	......	......	......
Candor	3,330	58	......	1	......	1	......	2	......	4	3
Newark Valley	2,164	29	......	......	......	......	......	......	......	1	2
Nichols	1,564	40	......	1	......	......	......	......	......	1	2
Owego	3,339	64	......	2	......	......	......	......	2	3	2
Owego	5,039	86	1	2	......	......	......	1	......	3	7

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Tioga county—(*Continued*)											
Richford	1,142	15	......	......	......	......	1	......	1	......	......
Spencer	1,868	31	......	......	......	......	......	......	......	1	4
Tioga	2,113	35	1	......	......	......	......	......	......	1	4
Tompkins county	33,830	509	1	10	......	2	4	......	8	16	27
ITHACA	13,136	218	1	6	......	1	4	......	7	7	16
Caroline	1,938	37	......	......	......	......	......	......	......	......	......
Danby	1,449	19	......	......	......	......	......	......	1	......	2
Dryden	3,785	55	......	2	......	......	......	......	......	2	1
Enfield	1,214	20	......	......	......	......	......	......	......	1	1
Groton	3,564	43	......	......	......	......	......	......	......	1	2
Ithaca	1,516	17	......	......	......	......	......	......	......	......	......
Lansing	2,550	34	......	......	......	......	......	......	......	2	3
Newfield	1,902	29	......	......	......	......	......	......	......	2	1
Ulysses	2,776	37	......	2	......	1	......	......	......	1	1
Ulster county	88,422	1,477	7	17	8	18	87	22	23	87	120
KINGSTON	24,535	470	2	2	4	8	16	10	9	23	44
Denning	783	7	......	......	......	......	......	......	......	......	......
Esopus	4,907	68	......	......	......	......	3	1	......	6	4
Gardiner	1,509	24	......	......	......	1	......	......	1	......	1
Hardenburgh	722	6	......	......	......	......	......	......	......	......	......
Hurley	1,903	43	......	1	......	......	......	1	......	2	3
Kingston	524	16	......	......	......	......	......	......	......	1	4
Lloyd	2,608	39	1	......	......	......	......	1	......	2	1

Marbletown	3,511	63	1	3		1			1	4	2
Marlborough	3,978	51							1	3	8
New Paltz	2,264	51		2			1			1	1
Olive	2,465	31								2	3
Plattekill	1,866	21		1							2
Rochester	2,874	44				1				1	3
Rosendale	6,278	124		4	2	1	13	4	5	12	1
Saugerties	6,057	109		3				1	4	8	12
Saugerties	3,697	78	2			1		2	2	10	17
Shandaken	3,053	47								4	3
Shawangunk	2,406	35								2	
Ulster	3,582	1									
Wawarsing	4,346	73	1	1			2	1		2	4
Ellenville	2,879	51			2		1	1		3	5
Woodstock	1,675	25					1			1	2
Warren county	**29,948**	**507**	**5**	**10**	**1**	**8**	**1**	**6**	**5**	**25**	**55**
Bolton	1,363	23									4
Caldwell	1,465	33									4
Chester	2,052	34							1	1	7
Hague	1,042	7								1	
Horicon	1,136	15				1					2
Johnsburgh	2,374	18		1							2
Luzerne	1,341	33									3
Queensbury	2,377	27	2	1		1	1			2	
Glens Falls	12,613	240	3	6	1	6		6	3	19	29
Stony Creek	1,019	25								2	
Thurman	809	15									1
Warrensburgh	2,352	37		2					1		3
Washington county	**45,624**	**768**	**1**	**13**		**1**		**2**	**13**	**38**	**58**
Argyle	1,995	53							1		4
Cambridge	1,878	31									2
Dresden	545	4									
Easton	2,247	26		1						2	3
Fort Ann	2,263	40									
Fort Edward	5,216	92		1		1			1	6	11

Record of each reporting local board of health, etc.—(Continued)

NAME OF PLACE.	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Washington county—*(Continued)*											
Granville	5,217	88		2						14	10
Greenwich	4,172	77	1	1					3	3	9
Hampton	689	12									
Hartford	1,290	33		1						1	2
Hebron	1,679	25		2							
Jackson	1,059	12		1							
Kingsbury	6,100	112		2				2	1	5	7
Putnam	505	6							1		
Salem	2,978	41		1						1	1
White Creek	2,496	34								1	4
Whitehall	918	3									
Whitehall	4,377	79		1					6	5	5
Wayne county	48,660	709	1	5		2	1	1	8	24	54
Newark	4,578	62	1							6	14
Arcadia	2,468	33								4	
Butler	1,786	23									1
Galen	2,099	20									1
Clyde	2,507	46		2		1				4	5
Huron	1,667	26		1							
Lyons	5,824	94		1					3	2	11
Macedon	2,488	38								2	2
Marion	2,015	31									3
Ontario	2,550	32									1
Palmyra	3,758	60								3	6

Rose	2,055	30	......	......	......	......	......	......	......	......	......
Savannah	1,733	30	......	......	......	......	......	......	......	......	2
Sodus	5,118	64	......	......	......	......	......	1	......	1	2
Walworth	2,137	29	......	......	......	......	1	......	......	1	3
Williamson	2,670	42	......	......	......	......	......	......	......	......	1
Wolcott	3,207	49	......	1	......	1	......	......	......	1	2
Westchester county	**183,875**	**3,064**	**4**	**17**	**9**	**11**	**39**	**18**	**66**	**231**	**261**
YONKERS	47,931	810	1	2	3	1	1	1	10	87	71
MOUNT VERNON	20,346	299	1	1	......	2	9	1	6	20	28
Bedford	3,497	71	......	1	......	1	......	......	1	2	9
Cortlandt	8,345	129	......	......	......	......	......	......	2	12	6
Peekskill	10,358	204	......	1	......	......	11	2	8	9	15
East Chester	3,040	56	......	......	......	......	......	......	......	3	6
Greenburgh	14,894	252	......	2	1	......	......	......	12	21	19
Harrison	2,048	35	......	1	......	......	......	......	......	1	2
Lewisboro	1,311	19	......	......	......	......	......	......	1	......	2
Mamaroneck	3,849	86	......	......	1	1	......	1	3	1	7
Mount Pleasant	8,698	196	......	......	......	......	......	2	......	6	27
New Castle	2,401	39	......	1	......	......	......	......	......	2	2
NEW ROCHELLE	14,720	265	......	1	3	3	16	1	10	16	17
North Castle	1,471	32	......	......	......	......	......	2	......	3	......
North Salem	1,133	7	......	......	......	......	......	......	......	1	......
Ossining	2,956	10	......	......	......	......	......	......	......	......	1
Sing Sing	7,939	135	1	2	......	......	1	1	3	6	15
Pelham	1,571	17	......	1	......	......	......	......	......	1	2
Poundridge	823	13	......	......	......	......	......	......	......	1	2
Port Chester	7,440	147	......	2	......	1	1	......	6	26	14
Rye	5,421	58	1	1	......	1	......	......	1	4	2
Scarsdale	885	9	......	......	......	......	......	......	......	......	......
Somers	1,338	15	......	......	......	......	......	......	1	......	......
White Plains	640	11	......	......	......	......	......	......	......	......	......
White Plains	7,899	114	......	1	1	1	......	2	2	8	11
Yorktown	2,421	35	......	......	......	......	......	......	......	1	3
Wyoming county	**30,418**	**401**	**3**	**5**	**1**	**1**	**4**	**2**	......	**18**	**28**
Arcade	1,877	24	1	1	......	......	1	......	......	1	......
Attica	2,677	36	......	......	......	......	......	......	......	1	1

Record of each reporting local board of health, etc—(Concluded)

NAME OF PLACE	Population	All deaths	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Scarlet fever	Measles	Whooping-cough	Diphtheria	Diarrhea	Consumption
Wyoming county—*(Continued)*											
Bennington	1,904	21	......	......	......	......	2	......	......	2	......
Castile	2,539	41	......	1	......	......	......	......	......	2	1
Covington	930	10	......	......	......	......	......	......	......	......	......
Eagle	1,114	12	......	......	......	......	......	......	......	......	......
Gainesville	2,325	33	......	......	......	......	1	1	......	......	5
Genesee Falls	658	7	......	......	......	......	......	......	......	1	1
Java	1,770	22	......	2	......	......	......	......	......	......	2
Middlebury	1,406	18	......	......	......	......	......	......	......	1	1
Orangeville	1,005	19	......	......	......	......	......	1	......	......	......
Perry	3,862	51	......	1	1	......	......	......	......	2	5
Pike	1,277	21	......	......	......	......	......	......	......	......	1
Sheldon	1,801	25	......	......	......	......	......	......	......	1	......
Warsaw	4,341	48	1	......	......	1	......	......	......	2	5
Wethersfield	927	13	1	......	......	......	......	......	......	......	1
Yates county	20,318	272	......	9	......	......	1	......	......	10	13
Barrington	1,249	12	......	......	......	......	......	......	......	1	......
Benton	1,970	21	......	......	......	......	......	......	......	......	4
Dundee	1,291	......	......	......	......	......	......	......	......	......	......
Italy	1,094	11	......	......	......	......	......	......	......	2	1
Jerusalem	2,775	34	......	1	......	......	......	......	......	......	2
Middlesex	1,282	16	......	......	......	......	......	......	......	......	......
Milo	1,877	24	......	......	......	......	......	......	......	......	......
Penn Yan	4,650	59	......	4	......	......	1	......	......	6	4

Potter	1,520	21	......	1	......	......	......	......	......	......	......
Starkey	1,545	47	......	2	......	......	......	......	......	1	2
Torrey	1,065	27	......	1	......	......	......	......	......	......	......
State prison	......	19	......	1	......	......	......	......	......	......	4
State asylums	......	874	......	10	1	......	......	6	......	21	89
Other public institutions	......	143	......	1	......	......	......	......	......	1	1

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT									
Totals	**3,935,000**	**6,283**	**18.8**	**2,046**	**32.5**	**643**	**102**	**15**	**56**
CITY OF NEW YORK									
Totals	**3,654,594**	**5,854**	**18.8**	**1,934**	**33.0**	**606**	**103**	**14**	**53**
BOROUGH OF MANHATTAN	2,007,241	3,287	18.9	1,108	33.7	317	100	8	26
BOROUGH OF THE BRONX	174,370	354	23.8	115	32.5	52	147	....	1
BOROUGH OF BROOKLYN	1,267,158	1,908	17.7	618	32.3	211	110	6	24
BOROUGH OF QUEENS	136,559	203	17.0	66	33.0	17	83	....	2
BOROUGH OF RICHMOND	69,266	102	17.3	27	27.0	9	90	....	....
Oyster Bay	15,000	......	......	......	......	......	......	....	....
Hempstead	24,000	19	......	6	31.6	0	......	....	....
North Hempstead	8,726	19	......	6	31.6	3	105	....	1
Southold	7,671	6	......	0	......	0	......	....	....
Sag Harbor	3,000	3	......	0	......	0	......	....	....
Huntington	8,253	11	......	1	......	0	......	....	....
Brookhaven	13,500	23	......	3	13.0	0	......	....	....
YONKERS	45,000	75	......	24	32.0	6	80	....	....
Greenburg	12,000	22	......	8	36.4	2	91	....	....
MOUNT VERNON	15,513	31	......	11	35.5	3	97	1	....
Port Chester	7,547	16	......	8	50.0	2	125	....	1
Sing Sing	9,500	15	......	4	26.7	2	133	....	....
NEW ROCHELLE	10,000	36	......	8	22.2	6	166	....	....
Peekskill	10,000	19	......	4	21.0	1	53	....	....
White Plains	4,012	12	......	3	25.0	1	83	....	....
Rest of district	90,000	122	15.5	24	18.1	11	90	....	1
HUDSON VALLEY DISTRICT									
Totals	**700,000**	**1,056**	**17.5**	**218**	**20.6**	**105**	**100**	**4**	**27**
ALBANY	100,000	135	16.0	36	26.6	10	74	....	3
COHOES	25,000	52	......	16	30.8	7	134	....	2
TROY	65,000	132	23.9	32	24.2	18	136	2	8
WATERVLIET	14,000	25	......	5	20.0	0	......	....	....
Green Island	4,500	12	......	7	58.3	3	250	....	1
Lansingburg	12,000	29	......	4	13.8	3	104	....	....
Hoosick Falls	7,014	2	......	0	......	0	......	....	....
RENSSELAER	8,000	12	......	4	33.3	3	250	....	2
Coxsackie	3,824	4	......	1	25.0	3	750	....	....
Catskill	5,000	5	......	0	......	0	......	....	....
HUDSON	10,000	16	......	8	50.0	4	250	....	....
KINGSTON	25,000	34	......	5	14.7	2	59	1	....
Ellenville	3,000	4	......	1	25.5	0	......	....	....
Marbletown	3,689	3	......	1	33.3	0	......	....	....
Rosendale	6,125	8	......	2	25.0	0	......	....	....
Esopus	5,035	4	......	0	......	0	......	....	....
Saugerties	4,237	5	......	1	20.0	0	......	....	....
POUGHKEEPSIE	25,000	39	......	11	28.2	0	......	....	....
Fishkill	12,000	29	......	7	21.7	4	147	....	....
Wappinger Falls	3,718	7	......	0	......	0	......	....	....
NEWBURGH	36,000	62	......	15	24.2	11	145	....	1
Port Jervis	9,327	9	......	1	11.1	1	111	....	....
MIDDLETOWN	12,000	23	......	8	34.8	1	43	....	....
Warwick	6,000	11	......	2	18.2	0	......	....	....
Goshen	4,646	11	......	2	18.2	1	90	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during January, 1900

in *italic* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
12	....	56	119	34	55	260	36	1,445	721	80	378	547	466	524	203	298	131	847
11	....	55	115	33	54	247	24	1,366	676	77	347	511	420	462	191	284	117	797
3	....	30	58	23	34	118	17	778	355	42	191	322	119	249	125	188	56	473
2	....	2	21	....	....	25	1	72	85	4	11	26	25	25	10	10	6	28
4	....	19	36	9	17	90	6	438	210	29	127	142	176	153	46	71	47	258
1	....	4	....	....	2	8	....	50	18	2	13	15	17	26	6	11	2	26
1	....	....	....	1	1	6	....	28	8	....	5	6	11	9	4	4	6	12
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	7	1	....	2	1	1	4	....	....	1	2
....	....	....	....	....	....	2	....	8	2	....	......	....	2	3	....	....	1	....
....	....	....	....	....	....	....	....	1	......	....	1	1	......	1	2	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	....	2	......	....	....	....	....
....	....	....	....	....	....	....	....	1	2	....	......	2	1	2	1	....	....	2
....	....	....	....	....	....	....	....	3	......	....	3	3	3	4	....	....	2	5
....	....	....	....	....	....	....	6	16	10	....	6	8	9	6	....	5	....	9
....	....	....	....	....	....	2	....	4	1	....	1	1	2	4	1	....	2	4
....	....	....	....	....	....	....	2	9	3	....	2	6	2	3	....	....	....	3
....	....	1	....	....	....	....	....	1	......	....	1	....	1	4	....	1	....	6
....	....	....	....	....	....	2	....	1	2	1	1	....	3	2	....	1	....	2
1	....	....	3	....	1	1	....	6	3	....	2	2	8	1	1	3	1	3
....	....	....	....	....	....	1	....	4	1	1	2	2	1	2	3	....	1	1
....	....	....	....	....	....	1	....	......	3	....	......	....	......	4	....	....	....	4
....	....	....	1	1	....	4	4	17	17	1	10	10	11	22	4	4	6	9
2	....	2	10	3	8	31	18	178	117	9	61	86	114	149	31	31	65	110
....	....	....	1	1	....	4	1	21	23	3	......	21	9	17	4	7	1	19
....	....	....	....	....	....	3	1	9	5	....	5	3	......	10	2	1	1	9
....	....	....	....	....	....	6	2	31	12	....	8	10	13	17	4	4	4	11
....	....	....	....	....	....	....	....	4	3	....	4	1	4	4	1	....	1	3
....	....	....	....	....	....	2	....	3	......	....	......	1	......	......	2	....	....	3
....	....	....	....	....	....	1	2	6	4	1	1	4	1	3	....	1	2	3
....	....	....	....	....	....	....	....	1	......	....	......	1	......	......	....	....	....	....
....	....	....	1	....	....	....	....	3	1	....	1	1	1	......	....	....	1	1
....	....	....	....	....	1	1	1	1	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	1	1	....	......	2	1	....	....	....
....	....	....	....	....	....	....	4	2	1	....	2	....	2	2	1	....	1	1
1	....	....	....	....	....	....	....	5	3	....	4	1	7	2	1	2	1	6
....	....	....	....	....	....	....	....	......	......	....	......	....	2	......	....	....	1	1
....	....	....	....	....	....	....	....	1	......	....	......	1	......	......	1	....	....	....
....	....	....	....	....	....	....	....	3	......	....	2	....	2	1	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	......	....	2	......	....	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	1	......	2	....	....	....	1
....	....	....	....	....	....	....	....	6	4	1	2	2	6	5	2	1	2	8
....	....	....	....	....	3	....	1	8	4	1	2	....	4	4	....	2	....	....
....	....	....	....	....	....	....	....	1	......	....	1	1	2	1	1	....	....	....
....	....	....	4	....	1	3	....	9	12	....	3	4	8	5	3	1	4	4
....	....	....	....	....	1	....	....	......	1	....	1	....	......	2	1	1	....	2
....	....	....	....	....	....	1	....	5	3	....	1	1	4	3	....	2	....	3
....	....	....	....	....	....	....	....	1	1	....	1	1	2	3	....	1	1	....
....	....	....	....	....	....	1	....	......	2	....	1	1	1	3	....	....	1	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	10	......	1	10.0	3	300	....	....
Haverstraw	7,714	......	......	......	......	......	......	....	....
Nayack	5,603	5	......	2	40.0	0	......	....	....
Ramapo	6,600	13	......	3	27.3	1	90	....	....
Rest of district	275,000	355	15.3	43	12.2	32	90	1	9
ADIRONDACK AND NORTH'N DISTRICT Totals	390,000	414	12.7	58	13.8	35	82	1	12
WATERTOWN	17,000	32	......	9	28.1	6	188	....	3
Ellisburgh	4,223	6	......	0	......	0	......	....	....
Cape Vincent	3,000	5	......	1	20.0	0	......	....	....
Clayton	4,250	3	......	0	......	0	......	....	....
OGDENSBURG	12,000	13	......	6	46.1	5	39	....	1
Gouverneur	6,000	5	......	0	......	0	......	....	....
Potsdam	4,000	5	......	1	20.0	0	......	....	....
Canton	6,013	11	......	0	......	0	......	....	....
Malone	5,000	8	......	1	12.5	1	125	....	....
Plattsburg	8,400	13	......	3	23.0	0	......	....	....
Glens Falls	12,500	17	......	3	17.6	2	117	....	1
Whitehall	4,500	7	......	1	14.2	0	......	....	....
Fort Edward	4,500	2	......	0	......	0	......	....	....
Kingsbury	5,112	3	......	1	33.3	0	......	....	....
Granville	5,281	5	......	1	20.0	0	......	....	....
Greenwich	4,500	7	......	1	14.2	3	429	....	....
Lowville	4,000	6	......	0	......	0	......	....	....
Rest of district	280,000	266	11.0	30	11.0	17	64	1	7
MOHAWK VALLEY DISTRICT Totals	395,000	484	14.0	79	16.3	40	82	2	13
SCHENECTADY	28,791	40	......	12	30.0	1	250	....	....
Cobleskill	3,436	5	......	1	20.0	0	......	....	....
AMSTERDAM	20,000	25	......	4	16.0	2	80	....	....
Fort Plain	3,000	......	......	......	......	......	......	....	....
JOHNSTOWN	7,786	6	......	3	50.0	0	......	....	....
GLOVERSVILLE	15,000	17	......	2	11.7	0	......	....	....
LITTLE FALLS	12,000	14	......	5	37.5	1	......	....	....
Herkimer	5,150	12	......	5	41.6	1	85	....	1
Ilion	4,057	2	......	1	50.0	0	......	....	....
UTICA	55,000	81	......	16	19.8	11	136	....	1
Whitestown	5,225	7	......	0	......	2	285	....	2
ROME	14,000	22	......	2	9.0	1	45	....	....
Boonville	3,512	7	......	0	......	0	......	....	....
Camden	3,675	6	......	0	......	1	166	....	1
Waterford	5,522	4	......	1	25.0	0	......	....	....
Mechanicville	3,000	9	......	2	22.2	2	222	....	....
Ballston Spa	3,527	8	......	1	12.5	0	......	....	....
Saratoga Springs	12,500	29	......	4	13.8	4	138	1	3
Rest of district	192,000	190	11.5	20	10.8	14	75	1	5
SOUTHERN TIER DISTRICT Totals	425,000	485	13.4	58	12.0	21	43	2	11
BINGHAMTON	45,000	50	......	5	10.0	3	60	....	2
Owego	6,000	7	......	0	......	0	......	....	....
Candor	3,525	5	......	0	......	0	......	....	....
Waverly	4,123	8	......	2	25.0	0	......	....	....
ELMIRA	40,000	46	......	7	15.2	2	44	1	1

FOR JANUARY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	3	....	1	1	....	1	2	1	1	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	1	....	1	....	....	....	2
....	....	....	....	....	....	1	....	3	2	....	2	....	1	4	....	....	....	....
1	....	2	4	2	2	5	6	52	33	2	18	28	42	57	7	8	44	32
1	....	4	....	1	3	8	5	51	42	5	37	21	51	67	11	13	35	46
....	....	1	....	....	2	....	....	3	6	....	2	2	2	8	....	1	1	1
....	....	....	....	....	....	....	....	1	....	1	....	2	1	....	....	1	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	2	....	1
....	....	....	....	....	....	....	....	....	1	....	....	1	1	....	....	....	....	....
....	....	2	....	1	....	....	1	....	2	....	1	....	1	1	....	....	....	3
....	....	....	....	....	....	....	....	....	1	....	....	1	....	3	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	1	1	1
....	....	....	....	....	....	....	....	3	1	....	....	....	....	1	1	1	3	1
....	....	....	....	....	....	1	....	1	....	....	3	1	....	....	....	....	1	1
....	....	....	....	....	....	....	....	4	2	....	3	....	1	1	....	....	1	1
1	....	....	....	....	....	....	....	2	1	1	....	2	2	3	1	....	1	2
....	....	....	....	....	....	....	....	1	....	....	2	....	1	1	....	....	....	2
....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	....	1
....	....	....	....	....	....	....	....	2	1	....	....	1	....	1	....	....	....	....
....	....	....	....	....	....	2	1	....	....	....	....	....	2	2	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	3	....	....	....	2
....	....	1	....	....	1	5	3	32	24	3	25	11	37	43	9	7	27	30
....	....	2	2	2	3	14	2	68	48	4	41	44	57	60	22	24	30	46
....	....	....	1	....	....	....	....	3	1	1	2	3	5	6	3	7	3	5
....	....	....	....	....	....	....	....	1	....	....	1	1		....	1	....	....	1
....	....	....	....	....	....	1	1	....	7	1	2	1	3	6	....	....	2	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	4
....	....	....	....	....	....	....	....	1	1	1	1	1	3	2	3	....	1	3
....	....	....	....	....	....	1	....	....	2	....	2	1	3	2	....	1	....	2
....	....	....	....	....	....	....	....	1	4	....	1	1	1	....	1	....	1	1
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1
....	....	....	....	1	1	8	....	16	4	....	7	14	3	10	1	3	5	7
....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	1	....	....	1
....	....	....	1	....	....	....	....	7	4	....	2	2	3	1	1	....	....	1
....	....	....	....	....	....	....	....	2	2	....	....	....	1	1	....	....	1	....
....	....	....	....	....	....	....	....	2	....	....	....	....	....	2	....	....	1	....
....	....	....	....	....	....	....	....	....	....	....	1	1	2	....	....	....	....	....
....	....	....	....	....	....	2	....	2	....	....	2	....	1	....	....	1	1	....
....	....	....	....	....	....	....	....	1	1	....	....	2	1	2	....	....	....	1
....	....	....	....	....	....	....	....	7	5	....	1	2	2	1	2	2	1	2
....	....	2	....	1	2	2	1	25	17	1	17	14	28	25	9	10	14	16
....	....	1	2	....	....	2	3	60	55	9	38	25	56	81	23	20	47	60
....	....	....	....	....	....	1	....	3	10	1	5	4	2	8	3	1	4	6
....	....	....	....	....	....	....	....	2	1	1	1	....	....	1	....	....	1	....
....	....	....	....	....	....	....	....	....	....	....	....	....	2	3	....	....	....	....
....	....	....	....	....	....	....	....	2	1	....	....	....	1	4	....	....	....	....
....	....	....	....	....	....	....	....	8	4	....	3	4	6	5	2	1	4	7

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	8	......	0	......	1	125	....	1
HORNELLSVILLE	12,000	8	......	1	12.5	1	125	....	1
Bath	3,261	2	......	0	......	0	......	....	....
CORNING	10,025	20	......	5	25.0	0	......	....	....
Wellsville	5,033	11	......	2	18.2	0	......	....	....
OLEAN	10,000	9	......	0	......	0	......	....	....
Salamanca	3,700	......	......	......	......	......	......	....	....
DUNKIRK	14,000	15	......	0	......	0	......	....	....
JAMESTOWN	18,627	17	......	3	17.6	1	58	....	....
Westfield	3,000	6	......	2	33.3	0	......	....	....
Fredonia	3,400	9	......	1	11.1	0	......	....	....
Rest of district	250,000	274	12.7	32	11.0	13	45	1	6
EAST CENTRAL DISTRICT:									
Totals	415,000	457	13.0	58	13.0	21	48	2	2
SYRACUSE	120,000	134	13.2	24	17.9	6	45	1	....
Baldwinsville	3,040	8	......	0	......	1	125	....	....
De Witt	5,182	6	......	1	16.7	0	......	....	....
Cortland	8,600	9	......	4	44.4	0	......	....	....
Homer	3,000	4	......	0	......	0	......	....	....
Oneida	6,100	7	......	0	......	1	142	....	1
Hamilton	4,110	1	......	0	......	0	......	....	....
Cazenovia	3,803	......	......	......	......	......	......	....	....
Brookfield	3,235	5	......	1	20.0	1	200	1	....
Norwich	6,000	10	......	2	20.0	0	......	....	....
Oneonta	8,000	5	......	0	......	0	......	....	....
Worcester	2,670	4	......	0	......	1	250	....	....
Cooperstown	3,000	5	......	1	20.0	0	......	....	....
Walton	4,811	......	......	......	......	......	......	....	....
Delhi	3,000	3	......	1	33.3	0	......	....	....
Liberty	3,500	2	......	0	......	0	......	....	....
Rest of district	230,000	254	13.0	24	9.7	11	46	....	1
WEST CENTRAL DISTRICT:									
Totals	325,000	361	13.4	40	11.0	22	61	....	8
AUBURN	35,000	51	......	11	21.5	4	78	....	1
ITHACA	13,460	12	......	0	......	1	83	....	1
Hector	4,832	6	......	2	33.3	2	333	....	....
Waterloo	4,350	2	......	0	......	0	......	....	....
Seneca Falls	6,500	8	......	0	......	0	......	....	....
GENEVA	11,800	15	......	2	13.3	1	66	....	....
Canandaigua	5,868	......	......	......	......	......	......	....	....
Manchester	4,181	5	......	0	......	0	......	....	....
Phelps	5,150	7	......	1	14.2	1	142	....	....
Penn Yan	4,800	4	......	0	......	1	250	....	1
Batavia	7,221	9	......	1	11.1	0	......	....	....
Dansville	3,758	7	......	0	......	1	142	....	1
Le Roy	3,000	6	......	0	......	0	......	....	....
Warsaw	4,700	2	......	0	......	0	......	....	....
Rest of district	212,000	227	12.7	23	10.1	11	48	....	4
LAKE ONTARIO AND WESTERN DISTRICT:									
Totals	890,000	1,002	13.5	233	23.2	101	100	3	15
BUFFALO	370,000	437	14.2	144	32.9	56	128	3	4
TONAWANDA	9,000	7	......	3	42.8	2	285	....	....
Amherst	4,000	6	......	2	33.3	0	......	....	....

FOR JANUARY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	....	....	....	1	....	....	2	....	....	3	1
....	....	....	....	....	....	....	....	....	....	....	1	....	4	....	....	1	....	1
....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	5	3	....	1	1	1	5	....	....	1	3
....	....	....	....	....	....	....	....	....	1	....	2	1	3	2	1	....	....	1
....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	2	....	....	3
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	4	1	1	2	1	1	....	2	....	3
....	....	....	....	....	....	....	1	2	3	....	1	2	....	3	1	1	2	1
....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	1	....	1	2
....	....	....	....	....	....	....	....	3	....	....	....	....	....	3	1	2	....	....
....	....	1	2	....	....	1	2	33	25	6	21	11	36	42	12	12	31	32
1	....	1	....	2	1	9	3	73	39	2	35	29	66	74	21	23	36	38
....	....	....	....	1	....	3	2	21	13	1	7	11	21	22	4	4	11	13
....	....	....	....	....	....	....	....	....	....	....	....	1	3	2	....	....	1	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	1	1	2
....	....	....	....	....	....	....	....	3	1	....	2	....	....	....	....	1	....	2
....	....	....	....	....	....	....	....	1	....	....	....	....	3	....	....	....	....	....
....	....	....	....	....	....	....	....	....	2	....	1	1	....	....	....	....	2	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	2	....	....	1	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	2	1	2	....	2	....	....	1
....	....	....	....	....	....	....	....	2	....	....	....	1	....	1	....	....	....	1
....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	3	....	....
....	....	....	....	....	....	....	....	3	1	....	....	....	....	....	....	1	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	1	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....
1	....	1	....	1	1	5	1	39	19	1	21	14	36	47	15	11	21	19
1	....	3	1	....	2	4	3	50	30	5	33	22	45	63	17	15	28	31
....	....	....	....	....	2	1	....	5	8	1	7	2	7	5	3	1	3	5
..	....	....	....	....	....	....	....	1	1	....	....	....	4	2	....	....	3	....
....	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....	....	2	1
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....
....	....	....	....	....	....	....	....	1	1	....	1	....	....	2	1	1	1	....
....	....	....	....	....	....	....	1	2	....	....	1	2	4	2	....	1	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	3	....
....	....	1	....	....	....	....	....	2	....	....	....	....	....	2	1	....	....	1
. ..	....	....	....	....	....	....	....	....	....	....	1	....	1	....	1	....	....	....
....	....	....	....	....	....	....	....	1	2	1	....	....	....	2	....	....	....	2
....	....	....	....	....	....	....	....	....	1	....	....	....	1	2	1	....	1	....
....	....	....	....	....	....	....	....	....	1	....	2	....	....	2	....	....	1	....
....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....
1	....	2	1	....	....	3	....	36	16	3	21	17	27	42	10	11	12	21
....	....	6	20	1	7	24	25	175	88	7	63	64	113	120	54	37	88	92
....	....	4	16	....	3	12	14	90	32	1	22	32	30	49	25	16	35	49
....	....	....	....	....	....	1	1	1	1	....	....	....	1	1	....	1	....	....
....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	1	....	2	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—*(Continued)*									
NORTH TONAWANDA	9,000	7	......	2	28.5	2	285	....	....
LOCKPORT	16,088	26	......	4	15.4	4	154	....	....
NIAGARA FALLS	16,000	30	......	9	30.0	10	333	....	7
Medina	4,500	8	......	1	12.5	0	......	....	....
Albion	4,536	6	......	1	16.7	0	......	....	....
Brockport	3,742	4	......	0	......	0	......	....	....
ROCHESTER	180,000	173	11.6	26	15.0	13	75	....	4
Palmyra	4,173	1	......	0	......	......	......	....	....
Newark	4,600	....	......	......	......	......	......	....	....
Lyons	6,127	18	......	1	5.5	0	......	....	....
Clyde	3,000	5	......	0	......	0	......	....	....
OSWEGO	22,000	22	......	6	27.2	3	136	....	....
Fulton	4,214	....	......	......	......	......	......	....	....
Richland	3,637	3	......	1	33.3	0	......	....	....
Rest of district	213,000	249	12.8	33	13.2	11	44	...	...
Totals for the state	7,400,000	10,552	18.0	2,788	26.5	988	94	29	144
Average for five years past	....	10,550	19.0	2,573	26.5	1019	100	45	12[illegible]

REMARKS—There was an increase in the mortality of 719 over the preceding month, the total reported mortality being 10,552, which is the average for this month for the past five years. The annual death rate for the month is 18.0 per 1,000, December being 16.5. Common epidemic diseases caused 988 deaths against 919 in December, the increase being chiefly in measles. There were about 300 more deaths from acute respiratory diseases and moderate increase of from 25 to 85 each in the deaths from other local diseases, from consumption, old age and unclassified diseases. Compared with January, 1899, the zymotic diseases caused 188 more deaths this month, the increase being chiefly in diphtheria, measles and typhoid fever. From acute respiratory diseases there were 860 fewer deaths this month, while from other local diseases the deaths are fewer, consumption is 160 less, old age is credited with hardly half the number of deaths and for unclassified causes there were about 800 fewer deaths. The total mortality is less by 1,870 than

FOR JANUARY—(*Concluded*)

ZYMOTIC DISEASES.								OTHER CAUSES OF DEATH.										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	1	....	....	....	1	......	......	1	1	....	1	1	....	....	1	....
....	....	....	....	....	1	3	....	8	2	....	1	1	3	2	1	....	3	1
....	....	....	....	....	....	....	3	5	4	....	3	....	2	1	....	....	3	2
....	....	....	....	....	....	....	....	3	1	....	......	1	1	1	1	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	....	1	......	1	....	2	1
....	....	....	....	....	....	....	....	......	1	....	1	1	......	1	....	....	....	....
.	....	2	....	....	....	4	3	29	19	3	15	15	26	22	7	5	9	10
....	....	....	....	....	....	....	....	1	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	3	....	4	....	3	2	....	2	3	....
....	....	....	....	....	....	....	....	1	......	....	......	....	1	1	....	1	....	1
....	....	....	....	....	....	3	....	3	4	....	......	1	4	2	1	....	1	3
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	1	1	......	....	....	1	....
....	....	....	3	1	3	1	3	31	20	2	16	12	39	36	17	12	28	25
17	....	75	154	43	79	352	95	2,100	1,140	121	686	838	968	1,138	382	461	460	1,270
23	1	100	93	30	65	425	117	2,213	1,162	85	640	705	990	1,080	320	395	571	1,370

in last January, the death rate of that month having been 21.0. Epidemic influenza was at its height of prevalence last January, having been estimated to have caused 3,000 deaths during the month; it may be estimated to have caused about 1,000 deaths, an increase of 400 over its estimated mortality in December.

Measles has largely increased in the Maritime district and is reported as prevalent in other localities. Elmira has reported many cases in the past two months and other municipalities show recent increase.

Smallpox was reported the latter part of the month at Mt. Vernon; three cases, negroes, since reported as recovering. Later two cases developed at New Rochelle, originating from Mt. Vernon. A suspected case has been reported from Fort Edward.

MONTHLY BULLETIN OF THE NEW

Abstracts of reports of deaths and their causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes		
								Cerebro-spinal menigitis	Typhoid fever
MARITIME DISTRICTS Totals	3,935,000	6,716	22.2	2,297	34.2	755	112	26	33
CITY OF NEW YORK Totals	3,654,594	6,317	22.5	2,181	34.5	716	113	26	31
BOROUGH OF MANHATTAN	2,007,241	3,602	23.4	1,314	36.5	389	108	16	14
BOROUGH OF THE BRONX	174,370	413	31.3	145	35.1	81	196	2	5
BOROUGH OF BROOKLYN	1,267,158	2,009	20.7	647	32.2	225	112	7	12
BOROUGH OF QUEENS	136,559	188	18.6	58	30.9	11	59	....	....
BOROUGH OF RICHMOND	69,266	105	21.0	17	16.2	10	95	1	....
Oyster Bay	15,000	18	*	8	44.4	1	56	....	....
Hempstead	24,000	19	......	4	21.1	1	53	....	1
North Hempstead	8,726	8	......	2	25.0	0	......	....	....
Southold	7,671	6	......	0	......	0	......	....	....
Sag Harbor	3,000	6	......	0	......	0	......	....	....
Huntington	8,253	7	......	2	28.6	0	......	....	....
Brookhaven	13,500	17	......	3	17.6	1	59	....	....
YONKERS	45,000	71	......	21	29.6	4	56	....	1
Greenburgh	12,000	14	......	6	42.9	1	71	....	....
MOUNT VERNON	15,513	23	......	9	39.1	4	174	....	....
Port Chester	7,547	7	......	1	14.3	2	286	....	....
Sing Sing	9,500	9	......	4	44.4	2	222	....	....
NEW ROCHELLE	10,000	29	......	17	58.6	16	552	....	....
Peekskill	10,000	11	......	3	27.3	1	91	....	....
White Plains	4,042	11	......	2	18.2	0	......	....	....
Rest of district	90,000	143	20.3	34	23.8	6	42	....	....
HUDSON VALLEY DISTRICT Totals	700,000	1,010	18.5	241	23.9	99	98	5	25
ALBANY	100,000	146	18.2	43	29.5	10	68	2	1
COHOES	25,000	41	......	19	46.3	11	268	....	5
TROY	65,000	112	22.4	20	17.9	9	80	....	8
WATERVLIET	14,000	25	......	8	32.0	2	80	....	1
Green Island	4,500	3	......	1	33.3	1	333	....	....
Lansingburgh	12,000	12	......	5	41.7	0	......	....	....
Hoosick Falls	7,014	16	......	2	12.5	1	63	....	1
RENSSELAER	8,000	15	......	2	13.3	2	133	....	1
Coxsackie	3,824	3	......	1	33.3	1	333	1	....
Catskill	5,000	5	......	1	20.0	0	......	....	....
HUDSON	10,000	29	......	12	41.4	9	310	....	2
KINGSTON	25,000	23	......	5	21.7	0	......	....	....
Ellenville	3,000	5	......	0	......	0	......	....	....
Marbletown	3,689	0	......	0	......	0	......	....	....
Rosendale	6,125	7	......	1	14.3	2	286	....	....
Esopus	5,035	7	......	1	14.3	1	143	....	....
Saugerties	4,237	5	......	0	......	1	200	....	....
POUGHKEEPSIE	25,000	37	......	9	24.3	6	162	....	1
Fishkill	12,000	18	......	6	33.3	3	167	....	....
Wappinger Falls	3,718	3	......	2	66.7	0	......	....	....
NEWBURGH	36,000	51	......	20	39.2	5	98	....	1
Port Jervis	9,327	14	......	3	21.4	3	214	....	....
MIDDLETOWN	12,000	20	......	2	10.0	0	......	....	....
Warwick	6,000	7	......	2	28.6	1	143	....	....
Goshen	4,646	10	......	0	......	0	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities villages and towns during February, 1900

in *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
9	....	91	159	43	70	264	60	1,723	734	72	342	576	412	524	202	280	135	961
8	....	87	146	43	68	253	54	1,644	686	69	333	545	372	478	192	262	107	913
3	....	50	71	33	31	132	39	983	361	38	177	312	177	267	122	165	52	559
2	....	14	32	....	7	19	....	88	81	3	17	24	28	30	11	10	5	35
2	....	19	41	10	29	93	12	498	207	26	119	179	150	158	51	66	43	287
1	....	4	....	....	1	3	2	50	28	2	13	15	10	13	3	15	4	24
....	....	....	2	....	....	6	1	25	9	....	7	15	7	10	5	6	3	8
....	....	....	....	....	....	....	1	5	1	....	......	....	1	3	....	1	1	5
....	....	....	....	....	....	....	....	5	3	1	......	1	......	3	....	....	2	3
....	....	....	....	....	....	....	....	8	2	....	1	....	......	1	1	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	....	3	1	....	....	1	....
....	....	....	....	....	....	....	....	1	......	....	......	1	......	......	....	2	2	..
....	....	....	....	....	....	....	....	2	......	....	......	2	1	1	1	....	....	....
....	....	....	....	....	....	1	....	3	......	....	1	...	2	4	1	2	2	1
....	....	....	....	....	....	1	2	19	11	....	1	6	8	9	1	1	1	10
....	....	....	....	....	....	1	....	1	1	1	......	2	......	1	1	2	....	4
....	....	....	1	....	....	2	1	7	3	....	......	1	1	1	....	1	3	2
....	....	....	....	....	....	2	....	......	2	....	......	1	2	......	....	....	....	....
....	....	....	1	....	....	1	....	1	1	....	......	1	......	1	....	1	....	2
....	....	2	11	....	....	2	1	2	1	....	......	1	3	......	....	...	3	3
....	....	....	....	....	1	....	....	......	3	....	1	2	......	1	1	....	...	2
....	....	....	....	....	....	....	....	3	......	....	......	....	......	3	1	....	1	3
1	....	2	....	....	1	1	1	27	19	1	5	13	19	17	3	8	12	13
4	....	4	15	6	7	14	19	180	115	9	46	68	121	146	40	43	55	88
....	....	....	1	....	....	4	2	28	17	....	10	4	13	29	9	7	5	14
....	....	....	....	....	....	1	5	7	2	....	1	2	2	7	....	....	2	7
....	....	....	....	....	....	....	1	25	17	....	6	7	15	10	5	4	2	12
....	....	....	....	....	....	....	1	5	1	1	1	3	3	3	1	....	2	3
....	....	....	....	1	....	....	....	1	......	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	1	2	1	......	3	......	2	....	....	1	2
....	....	....	....	....	....	....	....	3	......	....	1	3	......	2	2	....	3	1
....	....	....	....	....	....	....	1	2	4	...	1	....	1	1	....	1	1	2
....	....	....	....	....	....	....	....	1	......	....	......	....	......	......	....	....	....	1
....	....	....	....	....	....	....	....	......	......	....	2	1	1	......	....	1	...	...
....	....	....	....	....	1	....	6	7	1	....	......	....	2	5	1	....	3	1
....	....	....	....	....	....	....	....	3	4	....	1	3	4	2	1	1	....	4
....	....	....	....	....	....	....	....	......	......	....	......	1	......	3	....	1	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
1	....	1	....	....	....	....	....	3	......	....	......	....	1	1	....	....	....	....
....	....	....	....	....	1	....	....	2	1	....	1	....	......	2	....	....	...	....
....	....	....	....	1	....	....	....	......	1	....	......	....	1	1	1	....	....	....
....	....	....	3	1	....	1	....	6	2	1	......	2	4	5	2	2	3	4
....	....	....	....	....	1	1	1	5	3	....	1	1	3	......	....	....	2	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	...	3
1	....	....	....	....	....	2	1	14	5	1	1	3	8	11	....	....	...	3
....	....	....	....	1	2	....	....	1	2	....	1	3	......	1	....	....	2	1
....	....	....	....	....	....	....	....	2	6	....	1	1	2	4	2	....	....	2
....	....	....	....	....	....	1	....	......	1	....	......	4	......	......	....	....	....	1
....	....	....	....	....	....	....	....	1	3	....	......	....	......	2	....	3	1	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all diseases	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	14	......	3	21.4	2	143	1	....
Haverstraw	7,714	20	......	5	25.0	1	50	....	....
Nyack	5,603	6	......	0	......	0	......	....	....
Ramapo	6,600	5	......	0	......	1	200	....	....
Rest of district	275,000	351	17.2	68	19.4	27	77	1	4
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	410	14.0	79	19.3	54	132	6	18
WATERTOWN	17,000	32	......	6	18.8	4	125	....	4
Ellisburgh	4,223	3	......	0	......	0	......	....	....
Cape Vincent	3,009	4	......	0	......	0	......	....	....
Clayton	4,250	9	......	2	22.2	1	111	....	1
OGDENSBURG.	12,000	11	......	4	36.4	1	91	....	....
Gouverneur	6,000	8	......	2	25.0	1	125	1	....
Potsdam	4,000	9	......	0	......	1	111	....	....
Canton	6,013	7	......	0	......	1	143	....	....
Malone.	5,000	12	......	3	25.0	0	......	....	....
Plattsburg	8,400	4	......	2	50.0	2	500	....	1
Glens Falls	12,000	15	......	6	40.0	4	267	....	....
Whitehall	4,500	0	......	0	......	0	......	....	....
Fort Edward	4,500	9	......	1	11.1	0	......	....	....
Kingsbury	5,112	10	......	2	20.0	0	......	....	....
Granville	5,281	3	......	1	33.3	0	......	....	....
Greenwich	4,500	3	......	1	33.3	1	333	....	....
Lowville	4,000	2	......	0	......	0	......	....	....
Rest of district	280,000	269	13.0	49	18.2	38	141	5	12
MOHAWK VALLEY DISTRICT									
Totals	395,000	431	13.7	76	17.6	38	88	2	8
SCHENECTADY	28,791	47	......	17	36.2	11	234	....	3
COBLESKILL	3,436	4	......	0	......	0	......	....	....
AMSTERDAM	20,000	26	......	4	15.4	1	38	....	....
Fort Plain	3,000	......	......	......	......	......	......	....	....
JOHNSTOWN	7,768	10	......	0	......	1	100	....	1
GLOVERSVILLE	15,000	12	......	3	25.0	0	......	....	....
LITTLE FALLS	12,000	3	......	1	33.3	1	333	....	....
Herkimer	5,150	4	......	1	25.0	2	500	....	....
Ilion	4,057	5	......	1	20.0	0	......	....	....
UTICA	55,000	68	......	9	13.2	3	44	....	1
Whitestown	5,225	7	......	1	14.3	1	143	....	....
ROME	14,000	15	......	5	33.3	1	67	....	....
Boonville	3,512	9	......	0	......	......	......	....	....
Camden	3,675	3	......	1	33.3	......	......	....	....
Waterford	5,522	9	......	0	......	1	111	....	1
Mechanicville	3,000	6	......	1	6.7	2	333	1	1
Ballston Spa	3,527	6	......	2	33.3	1	167	....	....
Saratoga Springs	12,500	21	......	3	14.3	1	48	....	....
Rest of district	192,000	176	11.4	27	15.3	12	68	1	1
SOUTHERN TIER DISTRICT									
Totals	425,000	431	12.5	62	14.4	47	109	....	13
BINGHAMTON	45,000	93	......	9	14.3	12	190	....	3
Owego	6,000	7	......	1	14.3	......	......	....	....
Candor	3,525	4	......	1	25.0	1	250	....	....
Waverly	4,123	7	......	1	14.3	......	......	....	....
ELMIRA	40,000	39	......	6	15.4	3	77	....	1

FOR FEBRUARY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	1	....	2	1	....	......	....	3	4	....	....	1	1
1	....	....	....	....	....	....	....	2	3	....	......	2	3	6	....	2	1	....
....	....	....	....	....	....	....	....	......	1	....	......	1	2	2	....	....	....	....
....	....	....	....	....	....	1	....	1	......	....	......	....	......	2	....	1	....	....
1	....	3	11	2	2	2	1	58	38	5	18	24	52	41	16	20	26	26
1	....	7	2	3	1	8	8	67	36	2	20	30	40	49	17	19	41	35
....	....	....	....	....	....	....	....	6	2	....	2	2	3	2	....	3	3	5
....	....	....	....	....	....	....	....	1	......	....	......	....	1	......	....	....	1	....
....	....	....	....	....	....	....	....	2	......	....	......	....	1	......	....	1	....	....
....	....	....	....	....	....	....	....	2	1	....	1	....	......	1	1	1	....	1
....	....	1	....	....	....	....	....	......	2	....	......	2	2	......	....	....	1	3
....	....	....	....	....	....	....	....	2	......	1	......	....	......	1	1	....	....	2
....	....	....	....	....	....	....	1	4	......	....	......	....	......	1	....	1	2	....
....	....	....	....	....	....	....	1	1	1	....	1	2	1	......	....	....	....	....
....	....	....	....	....	....	....	....	4	......	....	......	....	1	2	....	2	....	3
....	....	....	....	....	....	1	....	......	......	....	......	....	......	1	....	....	....	1
....	....	2	....	....	....	1	1	6	1	....	......	1	1	1	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	......	....	2	3	....	1	....	1
....	....	....	....	....	....	....	....	......	2	....	......	2	1	1	....	1	2	1
....	....	....	....	....	....	....	....	1	......	....	......	....	......	1	1	....	....	....
....	....	....	....	....	....	1	....	......	......	....	1	....	......	1	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	2	....	....	....	....
1	....	4	2	3	1	5	5	37	26	1	15	21	27	32	14	9	31	18
....	....	4	....	2	1	12	9	53	43	....	19	42	49	70	27	21	33	36
....	....	1	....	....	....	3	4	5	4	....	4	1	4	7	1	4	2	4
....	....	....	....	....	....	....	....	......	1	....	......	....	......	1	....	....	1	1
....	....	....	....	....	....	....	1	2	5	....	3	3	1	4	1	1	1	4
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	2	....	......	2	1	3	....	....	....	1
....	....	....	....	....	....	....	....	1	......	....	......	3	1	2	2	1	1	1
....	....	....	....	....	....	1	....	1	......	....	......	....	......	......	1	....	....	....
....	....	....	....	....	....	1	1	......	1	....	......	....	......	......	....	1	....	....
....	....	....	....	....	....	....	....	1	1	....	......	....	......	1	....	1	....	1
....	....	....	....	....	....	1	1	9	10	....	3	7	7	12	4	2	5	6
....	....	....	....	....	....	....	1	2	2	....	......	1	......	......	....	....	....	1
....	....	....	....	1	....	....	....	4	1	....	......	....	......	3	1	1	1	3
....	....	....	....	....	....	....	....	......	1	....	......	....	3	2	3	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	....	1	......	....	....	1	....
....	....	....	....	....	....	....	....	......	1	....	......	2	1	2	2	....	....	....
....	....	....	....	....	....	....	....	1	1	....	......	....	2	......	....	....	....	....
....	....	....	....	....	....	1	....	......	......	....	......	1	1	1	....	....	1	1
....	....	....	....	....	....	....	1	4	1	....	......	3	2	2	4	1	1	2
....	....	3	....	1	1	5	....	22	12	....	9	19	25	30	8	9	19	11
....	....	1	6	....	2	17	8	65	35	4	20	33	42	67	24	23	39	32
....	....	....	....	....	....	9	....	11	6	....	3	3	3	14	2	1	5	3
....	....	....	....	....	....	....	....	2	......	....	1	1	......	1	....	....	1	1
....	....	....	....	....	1	....	....	......	1	....	......	....	......	1	1	....	....	....
....	....	....	....	....	....	....	....	1	......	....	1	2	......	1	2	....	....	....
....	....	....	1	....	....	....	1	6	3	1	2	6	1	2	2	5	3	5

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads.	3,319	6	......	1	16.7	1	167	....	1
HORNELLSVILLE	12,000	17	......	1	5.9	1	59	....	....
Bath	3,261	3	......	1	33.3	......	......	....	....
CORNING	10,025	13	......	1	7.7	......	......	...	....
Wellsville	5,033	1	......	1	100.0	1	1,000	....	....
OLEAN	10,000	....	......	......	......	......	......	....	....
Salamanca	3,700	4	......	1	25.0	......	......	....	....
DUNKIRK	14,000	17	......	5	29.4	6	353	....	3
JAMESTOWN	18,627	14	......	2	14.3	1	71	....	1
Westfield	3,000	1	......	0	......	......	......	....	....
Fredonia	3,400	8	......	2	25.0	......	......	....	....
Rest of district	250,000	227	11.6	29	12.8	21	93	....	4
EAST CENTRAL DISTRICT Totals	415,000	420	13.0	68	16.2	23	55	1	5
SYRACUSE	120,000	111	12.1	19	17.1	9	81	....	3
Baldwinsville	3,040	6	......	1	16.7	1	167	....	....
De Witt	5,182	9	......	5	55.6	1	111	....	....
Cortland	8,600	8	......	1	12.5	1	125	....	...
Homer	3,000	2	......	1	50.0	......	......	....	....
Oneida	6,100	9	......	1	11.1	......	......	....	....
Hamilton	4,110	3	......	0	......	......	......	....	....
Cazenovia	3,803	9	......	2	22.2	......	......	....	....
Brookfield	3,235	2	......	0	......	......	......	....	....
Norwich	6,000	3	......	1	33.3	1	333	....	....
Oneonta	8,000	8	......	1	12.5	1	125	....	1
Worcester	2,670	1	......	0	......	......	......	....	...
Cooperstown	3,000	3	......	0	......	......	......	....	...
Walton	4,811	....	......	......	......	......	......	....	....
Delhi	3,000	3	......	1	33.3	......	......	....	....
Liberty	3,500	16	......	5	31.3	......	......	....	....
Rest of district	230,000	227	12.7	30	13.2	9	40	1	1
WEST CENTRAL DISTRICT Totals	325,000	364	14.5	47	12.9	36	99	4	8
AUBURN	35,000	43	......	8	18.6	4	93	1	2
ITHACA	13,460	18	......	1	5.6	2	111	....	....
Hector	4,832	3	......	0	......	......	......	....	....
Waterloo	4,350	7	......	0	......	......	......	....	....
Seneca Falls	6,500	8	......	2	25.0	2	250	....	....
GENEVA	11,800	14	......	2	14.3	1	71	....	....
Canandaigua	5,868	....	......	......	......	......	......	....	....
Manchester	4,181	6	......	1	16.7	......	......	....	....
Phelps	5,150	7	......	3	42.9	1	143	1	....
Penn Yan	4,800	6	......	1	16.7	......	......	....	....
Batavia	7,221	7	......	2	28.6	3	429	....	....
Dansville	3,758	4	......	1	25.0	......	......	....	....
Le Roy	3,000	9	......	2	22.2	2	222	....	....
Warsaw	4,700	4	......	0	......	......	......	...	....
Rest of district	212,000	228	13.7	24	10.5	21	92	2	6
LAKE ONTARIO AND WESTERN DISTRICT Totals	890,000	1,014	14.6	272	26.8	98	97	5	12
BUFFALO	370,000	430	14.7	166	38.6	45	105	4	4
TONAWANDA	9,000	11	......	6	54.5	2	182	....	....
Amherst	4,000	6	......	1	16.7	2	333	....	1

FOR FEBRUARY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	1	....	....	....	1	....	2	....	....	....	1
....	....	....	....	....	....	....	1	1	3	1	....	1	....	3	3	1	1	2
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
....	....	....	....	....	....	....	....	7	1	....	....	....	3	1	....	1	....	....
....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	1	....	1	1	....	....	1	....
....	....	1	....	....	1	1	....	2	1	....	2	1	....	2	2	1	....	....
....	....	....	....	....	....	....	....	3	1	....	....	1	4	....	1	....	1	2
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....
....	....	....	....	....	....	....	....	2	....	....	....	....	1	2	....	2	....	1
....	....	....	5	....	....	6	6	29	19	2	10	17	28	35	11	12	26	17
2	....	2	1	....	3	3	6	50	44	2	24	41	53	49	31	23	43	37
1	....	....	1	....	1	1	2	8	17	....	10	14	14	5	13	3	5	13
....	....	....	....	....	....	....	1	....	....	....	1	1	....	1	....	....	2	....
....	....	....	....	....	1	....	....	4	....	....	....	....	1	....	....	1	....	2
....	....	....	....	....	....	1	....	....	1	....	1	1	3	1	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1
....	....	....	....	....	....	....	....	1	2	2	....	2	....	....	1	....	....	1
....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	1	....	....
....	....	....	....	....	....	....	....	1	1	....	....	....	1	1	....	1	2	2
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....
....	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1
....	....	....	....	....	....	....	....	1	1	....	....	1	1	1	....	1	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	1	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	1	....	1	....	....	....	....	....
....	....	....	....	....	....	....	....	3	5	....	1	1	2	1	....	1	1	1
1	....	1	....	....	1	1	3	29	17	....	9	21	29	37	16	13	32	15
....	....	1	1	....	1	12	9	56	29	4	15	24	45	57	19	18	39	22
....	....	....	....	....	1	....	....	9	5	1	1	....	4	7	1	2	2	7
....	....	....	....	....	....	2	....	6	3	....	1	1	....	3	1	....	1	....
....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	1	....
....	....	....	....	....	....	....	....	2	....	....	....	1	3	1	....	....	....	....
....	....	....	....	....	....	2	....	....	2	....	1	....	....	1	1	1	....	....
....	....	1	....	....	....	....	....	2	2	....	1	1	....	1	1	2	3	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	1	....	3	....	....	....	1
....	....	....	....	....	....	....	....	2	....	1	....	....	....	1	1	....	....	1
....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	1	3	....
....	....	....	....	....	....	3	....	2	1	....	....	....	....	1	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	....	1	....	1	....	....	....	....
....	....	....	....	....	....	2	....	2	1	....	....	....	....	1	....	....	1	2
....	....	....	....	....	....	....	....	....	....	....	....	2	1	1	....	....	....	....
....	....	....	1	....	....	3	9	28	14	2	9	17	37	35	14	12	28	11
2	....	9	22	2	6	22	18	208	95	14	57	59	104	147	36	44	78	74
....	....	3	15	1	1	9	8	112	34	3	35	19	32	65	15	14	20	36
....	....	....	2	....	....	....	....	2	2	....	....	....	1	1	....	....	1	2
....	....	....	....	....	....	....	1	....	2	....	....	....	....	....	....	1	....	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic diseases per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)									
NORTH TONAWANDA	9,000	8	......	3	37.5	1	125	....	....
LOCKPORT	16,088	21	......	4	19.0	1	48	....	....
NIAGARA FALLS	16,000	26	......	8	30.8	8	308	....	4
Medina	4,500	4	......	3	75.0	......	......	....	....
Albion	4,536	6	......	1	16.7	......	......	....	....
Brockport	3,742	4	......	0	......	......	......	....	....
ROCHESTER	180,000	168	12.1	33	19.0	10	60	1	....
Palmyra	4,173	7	......	0	......	......	......	....	....
Newark	4,600	3	......	0	......	1	333	....	....
Lyons	6,127	6	......	1	16.7	......	......	....	....
Clyde	3,000	2	......	0	......	......	......	....	....
OSWEGO	22,000	29	......	8	27.6	5	172	....	....
Fulton	4,214	21	......	2	9.5	2	95	....	....
Richland	3,637	3	......	1	33.3	......	......	....	....
Rest of district	231,000	259	14.2	35	13.5	21	81	....	3
Totals for the state	7,400,000	10,796	18.7	3,142	29.1	1,150	107	49	122
Average for five years past	....	10,080	19.3	2,747	27.3	918	91	44	108

REMARKS—In addition to cases of smallpox referred to in the January Bulletin as existing at Mt. Vernon, New Rochelle and Fort Edward, cases have been reported from Otego, Niagara Falls and Stockton.

As the origin of the disease in the different localities cannot be traced, it is urged that the health officers of the different municipalities of the state be on the alert for any outbreak of the disease, being careful to treat with suspicion cases claimed to be chicken pox, as it has been the experience of the State board of health during the past two years that many cases of smallpox were wrongfully diagnosed as chicken pox, with the result that the disease became epidemic in many localities of the state.

It is advised that all local boards of health adopt and enforce rules requiring that all cases of supposed chicken pox be reported promptly to them by the attending physicians, in order that the cases may be kept under observation—if necessary, quarantined—until all doubt is at rest as to the true nature of the disease.

As an aid in diagnosing a case of smallpox, note these data: If an adult; if the initial fever was marked and lasted three days; if the eruption came first on the face and is most abundant there; and if there is any induration of the lesion, as of a papule having become vesicular; all these or any modification of them are quite conclusive of smallpox. No adult should be allowed

FOR FEBRUARY—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	1	......	2	....	......	....	......	2	....	1	....	2
....	....	....	....	....	....	1	....	5	2	....	2	3	3	1	1	1	2	....
...	....	....	2	....	....	1	1	5	3	1	......	....	1	1	1	3	....	3
...	....	....	....	....	....	....	....	......	......	....	......	....	......	2	....	1	....	1
....	....	....	....	....	....	....	....	1	2	...	......	....	1	......	....	....	2	....
....	....	....	....	....	....	....	....	......	1	....	......	....	1	1	....	....	1	....
....	....	2	....	1	1	4	1	33	25	4	6	15	22	16	6	6	12	13
....	....	....	....	....	....	....	....	......	1	....	1	2	......	2	....	1	....	....
....	....	....	....	....	....	....	1	......	1	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	1	......	4	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	1	....	....	....	....
1	....	....	....	....	1	3	....	1	2	....	1	1	7	5	1	1	4	1
....	....	....	....	....	2	....	....	5	1	....	......	1	4	4	1	2	1	....
....	....	....	....	....	....	....	....	......	......	....	1	....	......	......	....	....	1	1
1	....	4	3	....	1	4	5	44	16	6	11	17	31	42	11	13	83	14
18	....	119	206	56	91	352	137	2,402	1,131	107	543	873	866	1,109	396	471	463	1,285
20	1	95	89	35	68	343	115	2,120	1,120	81	623	701	912	1,084	313	380	557	1,271

at large with an eruption thought to be varicella; no case of vesicular exanthem preceded by marked fever, though the fever may have no characteristics differing from that of a severe cold; no vesicular eruption so starting and coming mostly on the face, wrists, and frequently on the palms, is likely to be anything but smallpox; and if there is any induration of the base of the vesicular lesions, all of these are held to be conclusive symptoms. In every case give the public the benefit of the doubt by taking all necessary precautionary measures.

A case of smallpox should be quarantined as absolutely and remotely as possible, as infection from this disease goes a considerable distance, much further than that of any other infectious disease.

Manage this by placing the patient not only in an upper room, or in a detached building, but by keeping the windows closed or covered with sheets damp with a bi-chloride solution on the side toward which exposure may take place. Persons caring for the patient must not mingle with others at all, nor must articles be taken from the room until disinfected.

Vaccinate with fresh virus every one exposed or anywhere about the neighborhood. Vaccinate in two places on the arm, scarifying the size of a split pea till there is a little oozing at insertion of the deltoid and two inches above on either edge of the muscle; let it dry and cover with nothing; first clean the skin well with soap and water.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases.	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,935,000	7,998	23.9	2,591	32.4	753	94	34	34
CITY OF NEW YORK Totals	3,654,594	7,522	24.3	2,484	33.0	723	96	34	30
BOROUGH OF MANHATTAN	2,007,241	4,154	24.4	1,399	33.7	366	88	19	9
BOROUGH OF THE BRONX	174.370	481	33.4	148	30.8	59	123	4	1
BOROUGH OF BROOKLYN	1,267,158	4,284	23.0	839	33.8	266	107	9	17
BOROUGH OF QUEENS	136,559	250	21.4	64	25.6	19	76	....	2
BOROUGH OF RICHMOND	69,266	153	26.4	34	22.2	13	85	2	1
Oyster Bay	15,000	....	......	......	......	......	......	....	....
Hempstead	24,000	23	......	5	21.7	1	43	....	....
North Hempstead	8,726	18	......	6	33.3	1	56	....	....
Southold	7.671	11	......	5	45.5	0	......	....	...
Sag Harbor	3,000	11	......	3	27.3	0	......	....	....
Huntington	8,253	14	......	1	7.1	0	......	....	....
Brookhaven	13,500	30	......	4	13.3	3	100	....	2
YONKERS	45,000	59	......	15	25.4	3	51	....	....
Greenburgh	12,000	22	......	1	4.5	0	......	....	....
MOUNT VERNON	15,513	26	......	4	15.4	2	77	....	....
Port Chester	7,547	15	......	1	6.7	0	......	....	....
Sing Sing	9.500	10	......	4	40.0	0	......	....	....
NEW ROCHELLE	10,000	23	......	7	30.4	2	87	....	....
Peekskill	10,000	33	......	8	24.2	6	182	....	....
White Plains	4,042	15	......	3	20.0	0	......	....	....
Rest of district	90,000	166	20.3	40	24.1	12	72	....	2
HUDSON VALLEY DISTRICT Totals	700,000	1,266	21.1	287	22.7	141	111	4	37
ALBANY	100,000	180	21.9	48	26.7	17	94	....	3
COHOES	25,000	56	......	21	37.5	8	143	....	6
TROY	65,000	158	28.1	31	19.6	16	101	1	6
WATERVLIET	14,000	26	......	6	23.1	5	192	....	2
Green Island	4,500	15	......	4	26.7	3	200	....	1
Lansingburg	12,000	27	......	6	22.2	2	74	....	....
Hoosick Falls	7,014	15	......	4	26.7	0	......	....	....
RENSSELAER	8,000	15	......	7	46.7	3	200	....	1
Coxsackie	3,824	8	......	2	25.0	2	250	....	....
Catskill	5,000	12	......	3	25.0	0	......	....	....
HUDSON	10,000	36	......	4	11.1	5	139	....	5
KINGSTON	25,000	37	......	10	27.0	5	135	....	....
Ellenville	3,000	3	......	0	......	1	333	....	....
Marbletown	3.689	1	......	0	......	0	......	....	....
Rosendale	6,125	13	......	8	61.5	4	308	....	....
Esopus	5,035	....	......	......	......	0	......	....	....
Saugerties	4,237	6	......	3	50.0	1	167	....	....
POUGHKEEPSIE	25,000	52	......	7	13.5	5	96	....	2
Fishkill	12,000	21	......	6	28.6	2	95	....	....
Wappingers Falls	3,718	6	......	1	16.7	0	......	....	....
NEWBURGH	36,000	52	......	12	23.1	6	115	1	....
Port Jervis	9,327	14	......	0	......	1	71	....	1
MIDDLETOWN	12,000	28	......	4	14.3	4	143	....	2
Warwick	6,000	9	......	1	11.1	0	......	....	....
Goshen	4,646	15	......	1	6.7	0	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during March, 1900

in *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
17	....	68	138	54	87	245	76	2,212	877	104	437	626	508	618	223	265	164	1,211
16	....	67	129	53	87	241	66	2,074	816	102	412	587	463	559	209	253	139	1,185
8	....	36	74	36	28	109	47	1,177	403	54	230	339	227	314	113	166	67	698
1	....	10	12	3	6	22	....	117	106	7	17	24	33	84	7	11	12	54
5	....	20	41	11	49	98	16	666	250	41	142	199	179	172	73	55	50	391
2	....	1	1	3	3	6	1	74	32	....	16	11	12	33	9	10	7	27
....	....	....	1	....	1	6	2	40	25	....	7	14	12	6	7	11	3	15
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	1	6	1	....	2	3	3	4	2	....	1	....
....	....	....	....	1	....	....	....	4	3	....	2	1	1	4	....	1	....	1
....	....	....	....	....	....	....	....	5	1	....	......	....	1	1	....	....	1	2
....	....	....	....	....	....	....	....	4	3	....	1	....	......	1	....	....	....	2
....	....	....	....	....	....	....	....	2	1	....	1	2	1	2	....	....	3	2
....	....	....	....	....	....	1	....	5	4	....	2	4	2	4	3	1	....	2
....	....	....	....	....	....	....	1	17	9	....	6	2	10	7	....	2	2	1
....	....	....	....	....	....	....	....	5	4	....	4	1	......	3	....	2	3	....
....	....	....	1	....	....	1	....	6	1	1	......	1	3	5	1	....	3	3
....	....	....	....	....	....	....	....	8	......	....	......	1	3	1	....	1	1	....
....	....	....	....	....	....	....	....	3	1	1	......	2	......	1	....	....	....	2
1	....	....	1	....	....	....	....	12	1	....	......	1	1	5	1	....	....	....
....	....	....	6	....	....	....	....	10	3	....	......	2	6	1	1	1	2	1
....	....	....	....	....	....	....	....	6	2	....	1	2	1	1	....	1	....	1
....	....	1	1	....	....	2	6	45	27	....	6	17	13	19	6	3	9	9
2	....	7	25	12	15	24	15	294	133	11	54	59	147	173	48	40	63	103
....	....	....	1	3	....	5	5	55	22	4	7	6	17	21	4	5	9	13
....	....	....	1	....	1	....	....	13	6	1	2	2	3	3	3	1	2	12
....	....	....	....	2	....	3	4	41	26	1	6	8	22	16	7	1	5	9
....	....	1	....	....	2	....	....	6	1	....	2	1	3	1	1	1	3	2
....	....	....	....	1	....	1	....	1	1	....	......	2	4	1	2	1	...	....
....	....	....	....	1	1	....	....	6	3	....	2	....	4	3	1	2	....	4
....	....	....	....	....	....	....	....	1	1	2	1	1	2	1	....	2	....	4
....	....	....	....	....	....	2	....	2	1	....	2	....	2	3	....	....	....	2
....	....	....	....	....	1	1	....	......	1	....	2	1	1	1	....	....	....	....
....	....	....	....	....	....	....	....	1	2	....	......	....	1	2	2	....	2	2
....	....	....	....	....	....	....	....	11	2	....	3	1	2	5	2	1	2	2
....	....	1	2	....	2	....	....	4	5	....	1	2	3	8	3	....	2	4
....	....	....	....	....	....	....	1	1	1	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	1	....	....	....
....	....	....	3	....	....	1	....	5	......	....	1	....	1	......	....	1	....	1
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	1	....	....	....	....	....	1	1	....	......	1	......	1	...	....	...	1
1	....	....	1	....	....	....	1	15	6	....	1	2	8	4	5	1	2	3
1	....	....	....	....	1	....	....	9	3	....	......	....	4	1	....	....	1	1
....	....	....	....	....	....	....	....	1	1	....	......	1	1	2	....	....	....	....
....	....	....	2	1	....	1	1	16	4	....	2	3	6	8	1	2	1	3
....	....	....	....	....	....	....	....	2	1	....	1	2	2	2	....	1	....	2
....	....	....	....	....	2	....	....	4	2	....	1	1	3	11	2	....	....	....
....	....	....	....	....	....	....	....	3	......	....	......	1	1	2	....	....	2	....
....	....	....	....	....	....	....	....	2	2	....	......	1	......	4	1	2	2	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	12	......	3	25.0	1	83	....	....
Haverstraw	7,714	....	......	......	......	0	......	....	....
Nyack	5,603	8	......	3	37.5	0	......	....	....
Ramapo	6,600	18	......	11	61.1	4	222	....	....
Rest of district	275,000	423	18.6	81	19.1	46	109	2	8
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	515	15.9	86	16.7	37	72	5	9
WATERTOWN	17,000	34	......	7	20.6	3	88	....	....
Ellisburgh	4,223	9	......	0	......	0	......	....	....
Cape Vincent	3,000	9	......	0	......	2	222	....	....
Clayton	4,250	8	......	0	......	1	125	....	1
OGDENSBURG	12,000	17	......	3	17.6	0	......	....	....
Gouverneur	6,000	9	......	2	22.2	0	......	....	....
Potsdam	4,000	3	......	0	......	0	......	....	....
Canton	6,013	18	......	4	22.2	1	56	....	....
Malone	5,000	....	......	......	......	0	......	....	....
Plattsburg	8,400	11	......	4	36.7	0	......	....	....
Glens Falls	12,500	33	......	2	60.6	1	30	....	....
Whitehall	4,500	3	......	1	33.3	1	333	....	....
Fort Edward	4,500	9	......	2	22.2	1	111	....	....
Kingsbury	5,112	12	......	4	33.3	2	167	....	1
Granville	5,281	12	......	3	25.0	0	......	....	....
Greenwich	4,500	4	......	0	......	0	......	....	....
Lowville	4,000	9	......	1	11.1	0	......	....	....
Rest of district	280,000	315	13.0	53	16.8	25	79	5	7
MOHAWK VALLEY DISTRICT									
Totals	395,000	560	16.5	112	20.0	47	84	2	9
SCHENECTADY	28,791	64	......	20	31.3	7	109	1	3
Cobleskill	3,436	4	......	2	50.0	0	......	....	....
AMSTERDAM	20,000	27	......	13	48.1	5	185	....	....
Fort Plain	3,000	2	......	0	......	0	......	....	....
JOHNSTOWN	7,768	9	......	2	22.2	1	111	....	....
GLOVERSVILLE	15,000	12	......	3	25.0	0	......	....	....
LITTLE FALLS	12,000	20	......	3	15.0	1	50	....	....
Herkimer	5,150	5	......	0	......	0	......	....	....
Ilion	4,057	6	......	2	33.3	0	......	....	....
UTICA	55,000	90	......	15	16.7	8	89	....	....
Whitestown	5,225	11	......	1	9.1	1	91	....	....
ROME	14,000	24	......	2	8.3	1	42	....	....
Boonville	3,512	4	......	0	......	1	250	....	....
Camden	3,675	5	......	1	20.0	......	......	....	....
Waterford	5,522	15	......	4	26.7	2	133	....	....
Mechanicville	3,000	16	......	5	31.3	4	250	....	....
Ballston Spa	3,527	1	......	1	100.0	......	......	....	....
Saratoga Springs	12,500	24	......	3	12.5	1	42	....	....
Rest of district	192,000	221	13.3	35	15.8	15	68	1	6
SOUTHERN TIER DISTRICT									
Totals	425,000	595	15.9	91	15.8	54	91	....	7
BINGHAMTON	45,000	96	......	22	22.9	13	135	....	2
Owego	6,000	10	......	1	10.0	......	......	....	....
Candor	3,525	7	......	1	14.3	2	286	....	....
Waverly	4,123	7	......	2	28.6	......	......	....	....
ELMIRA	40,000	57	......	6	10.5	6	105	....	1

for March—(*Continued*)

Zymotic Diseases								Other Causes of Death										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	1	....	4	1	....	2	....	....	2	....	....	....	2
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	3	....	....	....	....	....	4
....	....	....	....	1	....	3	....	1	1	....	2	1	....	4	....	....	....	5
....	....	4	15	3	5	6	3	88	39	3	16	19	57	67	13	19	30	26
....	....	1	4	2	2	3	11	78	59	7	27	38	71	66	25	20	48	39
....	....	....	....	....	....	....	3	8	3	....	....	2	3	4	4	1	2	4
....	....	....	....	....	....	....	....	....	....	....	3	....	....	4	....	....	2	....
....	....	....	2	....	....	....	....	3	1	....	....	....	1	....	....	....	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	5	1	....	....	1	....
....	....	....	....	....	....	....	....	4	1	....	....	5	4	2	1	....	....	1
....	....	....	....	....	....	....	....	1	....	....	....	2	3	1	....	....	1	1
....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	1	....	....	....
....	....	....	....	....	....	....	1	3	1	....	1	2	5	3	....	....	....	2
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	3	....	....	1	....	2	1	1	....	1	2
....	....	1	....	....	....	....	....	4	6	....	2	2	3	6	1	2	2	4
....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	1	....	2	2	....	....	1	....	....	1	....	1	1
....	....	....	....	....	1	....	....	4	2	....	2	....	1	1	....	....	....	....
....	....	....	....	....	....	....	....	3	1	....	....	3	....	2	....	3	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	2	1	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	3	4	1	....	....	1
....	....	....	2	2	1	1	7	41	42	7	18	20	40	37	13	13	37	22
2	....	4	....	5	3	13	9	116	57	5	26	41	63	70	21	25	44	45
....	....	1	....	....	....	1	1	13	8	....	5	4	5	6	2	2	5	7
....	....	....	....	....	....	....	....	3	....	....	....	....	....	1	....	....	....	....
....	....	....	....	1	1	1	2	8	2	....	....	1	2	1	1	1	1	5
....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....
....	....	....	....	....	....	....	1	....	1	....	....	2	2	2	....	....	....	1
....	....	....	....	....	....	....	....	3	....	....	1	1	2	2	....	....	1	2
....	....	....	....	....	1	....	....	7	2	1	....	1	2	2	1	....	2	1
....	....	....	....	....	....	....	....	....	1	....	....	....	1	3	....	....	....	....
....	....	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....	1	2
1	....	....	....	1	....	3	3	21	11	1	2	4	11	12	7	3	4	6
....	....	....	....	....	....	....	1	1	1	....	....	2	....	1	1	1	2	1
....	....	1	....	....	....	....	....	1	2	....	....	1	7	4	1	3	2	2
1	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	1	1	....	....	....	1	1
....	....	....	....	....	1	1	....	2	3	....	....	....	2	3	....	....	1	2
....	....	....	....	....	....	4	....	4	....	....	1	....	....	3	....	3	....	1
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	....	1	....	3	2	....	2	4	4	1	1	2	2	2
....	....	2	....	3	....	2	1	46	23	2	14	19	24	26	7	10	22	12
2	....	4	8	3	6	14	10	96	53	9	32	50	75	80	24	20	65	37
1	....	....	....	....	1	7	2	12	10	2	4	7	13	11	2	3	10	9
....	....	....	....	....	....	....	....	3	....	....	1	....	....	2	....	1	3	....
....	....	1	....	....	1	....	....	....	1	....	....	2	....	2	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	1	1	....	2	....	....	1	1
....	....	....	5	....	....	....	....	5	10	2	1	4	12	9	1	3	3	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases.	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	5	......	0	......	......	......	....	....
HORNELLSVILLE	12,000	20	......	4	20.0	......	......	....	....
Bath	3,261	4	......	0	......	......	......	....	....
CORNING	10,025	23	......	4	17.4	7	304	....	1
Wellsville	5,033	8	......	1	12.5	1	125	....	1
OLEAN	10,000	8	......	4	50.0	1	125	....	....
Salamanca	3,700	3	......	1	33.3	......	......	....	....
DUNKIRK	14,000	19	......	6	31.6	5	263	....	1
JAMESTOWN	18,627	23	......	5	21.7	1	43	....	1
Westfield	3,000	1	......	0	......	......	......	....	....
Fredonia	3,400	10	......	1	10.0	2	200	....	....
Rest of district	250,000	294	13.1	33	11.2	16	54	....	....
EAST CENTRAL DISTRICT Totals	415,000	520	14.8	91	17.5	46	88	1	4
SYRACUSE	120,000	128	12.2	31	24.2	12	94	....	2
Baldwinsville	3,040	4	......	1	25.0	......	......	....	....
De Witt	5,182	2	......	1	50.0	1	500	....	....
CORTLAND	8,600	11	......	3	27.3	1	91	....	....
Homer	3,000	3	......	0	......	1	333	....	1
Oneida	6,100	6	......	2	33.3	......	......	....	....
Hamilton	4,110	6	......	2	33.3	......	......	....	....
Cazenovia	3,803	4	......	1	25.0	1	250	....	....
Brookfield	3,235	4	......	0	......	......	......	....	....
Norwich	6,000	14	......	3	21.4	2	143	....	....
Oneonta	8,000	9	......	1	11.1	......	......	....	....
Worcester	2,670	3	......	1	33.3	......	......	....	....
Cooperstown	3,000	0	......	0	......	......	......	....	....
Walton	4,811	7	......	1	14.3	2	286	....	....
Delhi	3,000	2	......	0	......	......	......	....	....
Liberty	3,500	10	......	2	20.0	......	......	....	....
Rest of district	230,000	307	15.9	42	13.7	26	85	1	1
WEST CENTRAL DISTRICT Totals	325,000	432	15.7	46	10.6	27	63	....	2
AUBURN	35,000	40	......	9	22.5	5	125	....	....
ITHACA	13,460	23	......	3	13.0	2	87	....	....
Hector	4,832	4	......	0	......	......	......	....	....
Waterloo	4,350	8	......	2	25.0	......	......	....	....
Seneca Falls	6,500	8	......	1	12.5	......	......	....	....
GENEVA	11,800	18	......	3	16.7	1	56	....	....
Canandaigua	5,868	8	......	0	......	1	125	....	1
Manchester	4,181	3	......	0	......	......	......	....	....
Phelps	5,160	7	......	1	14.3	......	......	....	....
Penn Yan	4,800	5	......	0	......	......	......	....	....
Batavia	7,221	20	......	4	20.0	6	300	....	....
Dansville	3,758	11	......	0	......	......	......	....	....
Le Roy	3,000	5	......	0	......	......	......	....	....
Warsaw	4,700	9	......	0	......	......	......	....	....
Rest of district	212,000	263	13.8	23	8.7	12	46	....	1
LAKE ONTARIO AND WESTERN DISTRICT Totals	890,000	1,147	15.1	270	23.5	108	94	4	18
BUFFALO	370,000	441	13.8	126	28.6	35	79	2	7
TONAWANDA	9,000	8	......	1	12.5	......	......	....	....
Amherst	4,000	....	......	......	......	......	......	....	....

FOR MARCH—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	......	......	....	......	....	......	3	....	....	1	1
....	....	....	....	....	....	....	....	2	1	....	3	1	2	4	1	1	3	2
....	....	....	....	....	....	....	....	1	1	....	......	1	......	......	....	....	1	....
1	....	1	....	1	....	3	....	3	3	....	......	1	4	2	1	1	....	1
....	....	....	....	....	....	....	....	1	1	....	1	....	2	......	....	....	2	....
....	....	....	....	1	....	....	....	2	......	....	1	1	......	1	....	1	....	1
....	....	....	....	....	....	....	....	......	......	....	......	1	......	1	....	....	....	1
....	....	....	....	....	3	....	1	4	1	....	1	2	3	......	....	1	....	2
....	....	....	....	....	....	....	....	5	2	....	3	4	3	......	....	....	1	3
....	....	....	....	....	....	....	....	......	......	....	1	....	......	......	....	....	....	....
....	....	1	....	....	1	....	....	......	......	1	2	....	......	1	2	....	2	....
....	....	1	3	1	....	4	7	57	23	4	13	25	36	41	17	9	38	15
....	....	3	3	4	7	9	15	97	37	4	23	43	70	73	19	18	51	39
....	....	1	1	1	3	1	3	18	13	2	3	18	12	22	6	10	3	9
....	....	....	....	....	....	....	....	......	......	....	1	1	......	2	....	....	....	....
....	....	....	....	....	1	....	....	......	......	....	......	1	......	......	....	....	....	....
....	....	1	....	....	....	....	....	2	1	....	1	....	2	2	....	....	1	1
....	....	....	....	....	....	....	....	1	......	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	......	2	....	......	....	......	1	....	....	2	1
....	....	....	....	....	....	....	....	1	1	....	......	....	1	2	....	1	....	....
....	....	....	....	....	....	....	1	......	......	....	1	....	......	......	....	....	1	1
....	....	....	....	....	....	....	....	1	1	....	......	....	......	......	....	....	2	....
....	....	1	....	....	....	....	1	3	1	....	2	1	......	2	1	....	1	1
....	....	....	....	....	....	....	....	1	1	....	1	....	2	1	....	....	2	1
....	....	....	....	....	....	....	....	1	......	....	......	....	......	......	1	....	....	1
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	1	....	....	1	1	......	....	1	1	1	......	....	....	....	1
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	....	....	1	....
....	....	....	....	....	....	....	....	2	2	....	......	1	1	......	1	....	1	2
....	....	....	2	2	3	8	9	66	15	2	13	20	49	41	10	7	37	21
....	....	....	4	1	2	11	7	60	37	3	25	36	60	58	29	18	53	26
....	....	....	....	1	2	2	....	10	4	1	3	2	3	4	....	1	3	4
....	....	....	....	....	....	2	....	......	1	1	1	4	4	......	3	....	3	4
....	....	....	....	....	....	....	....	2	......	....	......	....	......	......	2	....	....	....
....	....	....	....	....	....	....	....	......	1	....	1	2	......	......	....	....	2	2
....	....	....	....	....	....	....	....	2	1	....	1	....	2	1	....	....	....	1
....	....	....	....	....	....	....	1	1	3	....	2	1	2	2	2	....	1	3
....	....	....	....	....	....	....	....	2	2	....	......	....	......	1	1	....	....	1
....	....	....	....	....	....	....	....	1	1	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	2	......	....	3	....	......	......	1	1	....	....
....	....	....	....	....	....	....	....	1	......	....	1	....	......	1	1	....	1	....
....	....	....	....	....	....	5	1	3	2	....	1	1	......	3	....	1	2	1
....	....	....	....	....	....	....	....	1	......	....	1	....	2	2	....	4	1	....
....	....	....	....	....	....	....	....	......	1	....	......	....	......	1	2	....	....	1
....	....	....	....	....	....	....	....	......	1	....	1	1	3	2	....	....	....	1
....	....	....	4	....	....	2	5	35	20	1	10	25	43	41	17	11	40	8
....	....	7	20	5	7	23	24	184	110	17	65	89	138	163	54	31	103	85
....	....	1	8	1	1	5	10	72	45	6	22	29	47	70	18	12	42	43
....	....	....	....	....	....	....	....	......	1	1	......	....	2	1	1	1	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)									
NORTH TONAWANDA	9,000	9	......	0	......	......	......	...	....
LOCKPORT	16,088	19	......	5	26.3	2	105	1	....
NIAGARA FALLS	16,000	36	......	11	30.6	11	306	1	3
Medina	4,500	5	......	1	20.0	......	......	....	....
Albion	4,536	8	......	0	......	......	......	....	....
Brockport	3,742	6	......	0	......	......	......	....	....
ROCHESTER	180,000	224	14.2	47	21.0	22	98	....	1
Palmyra	4,173	7	......	1	14.3	......	......	....	....
Newark	4,600	7	......	3	42.9	1	143	....	....
Lyons	6,127	7	......	2	28.6	......	......	....	....
Clyde	3,000	5	......	1	20.0	1	200	....	....
OSWEGO	22,000	43	......	5	11.6	4	93	....	3
Fulton	4,214	9	......	0	......	......	......	....	....
Richland	3,637	4	......	1	25.0	......	......	....	....
Rest of district	231,000	309	15.8	66	21.4	32	104	....	4
Totals for the state	7,400,000	13,033	20.4	3,574	27.4	1,213	93	50	120
Average for five years past	....	11,080	19.6	3,129	28.2	1,030	93	63	105

REMARKS—In view of the fact that the communicability of pulmonary tuberculosis has been so thoroughly established, and is now so generally recognized by the medical profession throughout the world, and as the disease can often be cured in its earlier stages, under modern treatment, and may be averted in many instances by the exercise of certain precautions, the following circulars of information have been prepared by this Board:

INFORMATION FOR CONSUMPTIVES AND THOSE LIVING WITH THEM—Consumption is a disease which can be taken from others, and is not simply caused by colds. A cold may make it easier to take the disease. It is usually caused by germs which enter the body with the air breathed. The matter which consuptives cough or spit up contains these germs in great numbers; frequently millions are discharged in a single day. This matter spit upon the floor, wall or elsewhere,i s apt to dry, become pulverized, and float in the air as dust. The dust contains the germs, and thus they enter the body with the air breathed. The breath of a consumptive does not contain the germs and will not produce the disease. A well person catches the disease from a consumptive only by in some way taking in the matter coughed up by the consumptive.

Consumption can often be cured if its nature is recognized early and proper means are taken for its treatment. In a majority of cases it is not a fatal disease.

It is not dangerous for other persons to live with a consumptive if the matter coughed up by the consumptive is at once destroyed. This matter should not be spit upon the floor, carpet, stove, wall or street, or anywhere except into a cup kept for that purpose. This cup should contain water, so that the matter may not dry, and should be emptied into the closet at least twice a day, and carefully washed with hot water. Great care should be taken by a consumptive that his hands, face and clothing do not become soiled with the matter coughed up. If they do become soiled, they should be at once washed with hot water and soap. When consumptives are away from home the matter coughed up may be received on cloths, which should be at once burned on returning home. If handkerchiefs are used (worthless cloths which can be burned are far better) they should be boiled in water alone before being washed.

It is better for a consumptive to sleep alone, and his bedclothing and personal clothing should be boiled and washed separately from the clothing belonging to other people.

Whenever a person is thought to be suffering from consumption, the name and address should be sent at once to the local health officer in whose jurisdiction the case occurs, with a statement of this fact. An inspector will then call and examine the person to see if he has consumption, providing he has no physician, and, if necessary, will give proper directions to prevent others from catching the disease.

FOR MARCH—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH.												
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	4	3	....	1	....	......	1	....	....	....	....
....	....	....	....	....	1	....	....	3	......	....	2	2	4	2	1	2	....	1
....	....	....	5	....	....	1	1	2	2	....	......	4	4	2	2	1	2	6
....	....	....	....	....	....	....	....	3	1	....	......	....	......	1	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	1	....	1	1	2	1	....	....
....	....	....	....	....	....	....	....	2	1	....	......	1	......	1	1	....	....	....
....	....	1	1	3	2	7	7	31	21	5	13	23	29	36	12	5	13	14
....	....	....	....	....	....	....	....	2	2	....	2	....	......	......	....	....	....	1
...	....	....	....	1	....	....	....	1	......	....	1	....	2	......	....	....	1	1
....	....	....	....	....	....	....	....	1	......	....	1	1	......	......	....	1	2	1
....	....	....	....	....	....	....	1	......	......	....	......	1	......	2	....	....	....	1
....	....	....	....	....	....	1	....	4	5	....	4	2	10	3	4	2	3	2
....	....	....	....	....	....	....	....	1	......	1	......	1	1	2	....	....	1	2
....	....	....	....	....	....	....	....	2	......	....	......	...	2	......	....	....	....	....
..	....	5	6	....	3	9	5	55	28	4	18	25	36	41	18	6	88	13
23 21	 1	94 102	202 134	86 41	129 89	342 339	167 135	3,137 2,241	1,363 1.281	160 102	689 700	982 770	1,132 1,018	1,301 1,218	443 361	437 424	591 603	1,585 1,332

A person suffering from consumption may often not only do his usual work without giving the disease to others, but may also get well, if the matter coughed up is only properly destroyed.

Rooms that have been occupied by consumptives should be thoroughly cleaned, scrubbed, whitewashed, painted or papered before they are again occupied. Carpets, rugs, bedding, etc., from rooms which have been occupied by consumptives, should be destroyed.

CIRCULAR TO HEALTH OFFICERS—In compliance with a resolution adopted at a meeting of the Board held February 14, 1900, your attention is called to the requirements of section 24, of chapter 661 of the Laws of 1893 (Public health law), which provides that "Health officers of villages and towns shall report in writing once a month to the State Board of Health all cases of such contagious and infectious diseases as may be required by the State Board of Health, * * * ."

As pulmonary tuberculosis is now so generally recognized by the medical profession as an infectious disease, this Board has decided to include it in the list of infectious and contagious diseases to be reported monthly by the health officers of the different municipalities of the state.

Appreciating the fact that the person afflicted, as well as the immediate families of consumptives are loth to having any publicity given to their cases, we beg to assure you that there is no desire on the part of this Board to cause the isolation of the consumptives or to institute a system of inspection, the intention of the Board being to secure, if possible, a census of the number of cases actually existing in the state, such a census being necessary to determine as to the necessity for state care of the consumptives and for making some estimate as to the seriousness of the question from a sanitary point of view.

In order that this Board may be in a position to determine approximately the number of cases of consumption in the state, your earnest co-operation in the work of compiling statistics is requested by means of monthly reports from you to this department of all known cases of the disease within your municipality.

While it is understood that the physicians in your municipality will have to be relied upon to a great extent in securing the information desired, it is thought that if you will acquaint them with our purpose they will not hesitate to make the necessary reports to you of such cases as they may have in their practice.

During the last session of the legislature an appropriation of $50,000 was made for the purpose of establishing a state hospital, in some suitable place in the Adirondacks, for the treatment of incipient tuberculosis.

MONTHLY BULLETIN OF THE NEW

Abstract of report of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1000 deaths from all causes		
								Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT									
Totals	3,935,000	7,319	22.5	2,502	34.2	733	100	33	27
CITY OF NEW YORK									
Totals	3.654,594	6,802	22.6	2,388	35.0	705	104	33	24
BOROUGH OF MANHATTAN	2,007,241	3,821	23.2	1,382	33.5	372	97	21	9
BOROUGH OF THE BRONX	174,370	392	27.3	108	27.5	45	115	....	1
BOROUGH OF BROOKLYN	1,267,158	2,229	21.4	796	35.8	257	115	12	14
BOROUGH OF QUEENS	136,559	220	19.5	66	30.0	17	77	....	....
BOROUGH OF RICHMOND	69,266	140	24.6	36	25.7	14	100	....	....
Oyster Bay	15,000	43	......	7	16.3	......	......	....	....
Hempstead	21,000	32	......	4	12.5	3	94	....	....
North Hempstead	8,726	20	......	8	40.0	2	100	....	....
Southold	7,671	5	......	0	......	......	......	....	....
Sag Harbor	3,000	11	......	1	9.1	......	......	....	....
Huntington	8,253	10	......	0	......	......	......	....	....
Brookhaven	13,500	12	......	0	......	......	......	....	....
YONKERS	45,000	74	......	17	23.0	1	14	....	....
Greenburg	12,000	21	......	6	28.8	......	......	....	....
MOUNT VERNON	15,513	31	......	8	25.8	2	62	....	1
Port Chester	7,547	9	......	3	33.3	......	......	....	....
Sing Sing	9,500	13	......	4	30.7	1	77	....	....
NEW ROCHELLE	10,000	22	......	6	27.3	3	136	....	....
Peekskill	10,000	31	......	7	22.5	7	225	....	....
White Plains	4,042	3	......	0	......	......	......	....	....
Rest of district	90,000	180	23.0	43	24.7	9	53	....	2
HUDSON VALLEY DISTRICT									
Totals	700,000	1,163	20.0	262	22.5	111	95	7	33
ALBANY	100,000	202	22.4	43	26.3	10	50	2	6
COHOES	25,000	51	......	12	59.5	5	98	....	5
TROY	65,000	112	21.2	21	18.9	13	116	1	6
WATERVLIET	14,000	28	......	9	32.1	3	107	....	1
Green Island	4,500	3	......	0	......	......	......	....	....
Lansingburg	12,000	15	......	1	6.6	3	66	....	2
Hoosick Falls	7,014	9	......	1	11.1	1	111	....	1
RENSSELAER	8,000	16	......	6	37.5	......	......	....	....
Coxsackie	3,824	2	......	0	......	1	500	1	....
Catskill	5,000	10	......	3	30.0	......	......	....	....
HUDSON	10,000	24	......	3	12.5	1	42	....	1
KINGSTON	25,000	57	......	25	44.0	9	158	....	....
Ellenville	3,000	2	......	1	50.0	1	500	....	....
Marbletown	3,689	7	......	1	14.2	......	......	....	....
Rosendale	6,125	18	......	9	50.0	5	266	....	1
Esopus	5,035	7	......	1	14.2	1	142	....	....
Saugerties	4,237	9	......	3	33.3	1	111	1	....
POUGHKEEPSIE	25,000	60	......	16	26.6	10	166	....	2
Fishkill	12,000	29	......	8	40.0	3	150	....	....
Wappingers Falls	3,718	6	......	0	......	......	......	....	....
NEWBURGH	36,000	48	......	8	16.7	3	62	....	....
Port Jervis	9,327	19	......	4	21.0	2	105	....	1
MIDDLETOWN	12,000	24	......	7	29.1	2	84	....	....
Warwick	6,000	18	......	4	22.2	1	55	....	....
Goshen	4,646	6	......	1	16.6	......	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during April, 1900

in *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH												
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
21	1	71	129	73	82	224	72	1,906	835	71	497	544	489	596	208	282	106	1,052
19	1	70	123	72	79	220	64	1,767	802	66	455	505	428	522	194	265	76	1,017
5	....	40	53	48	33	125	38	1,001	435	33	228	291	239	289	127	165	43	598
2	1	7	11	5	5	12	1	82	91	3	14	22	26	36	5	16	6	46
8	....	21	53	16	39	73	21	581	238	27	195	170	144	157	48	65	22	325
4	....	2	1	3	1	4	2	63	19	3	15	12	9	24	3	15	4	36
....	....	....	5	....	1	6	2	40	19	....	3	10	10	16	11	4	1	12
....	....	....	....	....	....	....	....	8	4	1	1	5	8	6	2	....	6	2
1	....	....	1	1	....	....	....	10	......	....	1	2	7	7	1	1	....	....
1	....	....	....	....	....	1	....	7	1	....	......	1	1	2	1	1	....	4
....	....	....	....	....	....	....	....	......	1	....	2	....	......	......	1	....	1	....
....	....	....	....	....	....	....	....	7	......	....	......	2	2	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	1	......	2	1	3	....	....	1	1
....	....	....	....	....	....	....	....	2	3	....	......	....	1	3	....	....	3	....
....	....	....	....	....	....	1	....	26	5	2	8	2	8	13	....	8	2	4
....	....	....	....	....	....	....	....	6	1	....	2	1	2	2	3	1	....	3
....	....	....	....	....	....	....	1	7	1	....	4	4	......	8	2	1	1	1
....	....	....	....	....	....	....	....	3	2	....	......	....	......	1	1	....	....	2
....	....	....	....	....	....	....	1	3	1	....	2	2	2	1	....	....	....	1
....	....	1	1	....	....	....	1	10	......	....	1	1	3	......	1	....	....	3
....	....	....	4	....	1	....	2	5	1	....	4	4	3	3	1	2	....	1
....	....	....	....	....	....	....	....	......	......	....	......	....	......	3	....	....	....	....
....	....	....	....	....	2	2	3	45	12	1	17	13	23	22	1	8	16	13
1	....	3	34	4	10	11	8	330	137	9	76	58	122	144	40	43	85	108
....	....	....	....	....	....	1	1	58	26	3	20	12	14	18	6	7	12	16
....	....	....	....	....	....	....	....	6	12	....	4	2	2	7	2	2	....	9
....	....	....	....	1	1	2	2	28	20	2	5	10	8	4	3	2	5	12
....	....	....	....	....	....	2	....	10	4	....	1	1	2	2	1	1	1	2
....	....	....	....	....	....	....	....	......	......	....	......	1	1	......	....	1	....	....
....	....	....	....	1	....	....	....	5	2	....	1	....	1	1	1	....	1	....
....	....	....	....	....	....	....	....	......	......	....	1	....	2	3	....	....	1	1
....	....	....	....	....	....	....	....	5	......	....	1	1	2	1	....	2	2	2
....	....	....	....	....	....	....	....	......	1	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	5	1	1	1	....	......	2	....	....	....	....
....	....	....	....	....	....	....	....	6	3	....	4	....	......	4	1	....	3	2
....	....	1	6	....	2	....	....	11	5	....	......	3	7	5	1	4	3	9
....	....	....	....	....	1	....	....	......	1	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	3	1	....	......	....	......	2	1	....	....	....
....	....	....	4	....	....	....	....	4	......	....	......	....	3	2	....	....	....	4
....	....	....	1	....	....	....	....	1	......	1	1	....	......	1	1	1	....	....
....	....	....	....	....	....	....	....	3	2	....	......	1	1	......	....	....	....	1
....	....	....	8	....	....	....	....	13	5	....	5	1	4	5	4	2	4	7
....	....	....	2	....	....	1	....	7	3	....	4	2	......	7	1	1	1	....
....	....	....	....	....	....	....	....	......	2	....	......	....	......	2	....	1	1	....
....	....	....	....	....	2	....	1	13	5	....	3	6	4	5	2	2	3	2
....	....	1	....	....	....	....	....	4	2	....	1	1	2	......	....	....	4	3
....	....	....	1	....	1	....	....	4	1	....	1	1	3	6	1	....	....	5
1	....	....	....	....	....	....	....	7	1	....	......	....	2	4	....	....	3	....
....	....	....	....	....	....	....	....	2	1	....	......	1	2	......	....	....	....	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	9	......	4	44.4	3	333	....	....
Haverstraw	7,714	....	......	......	......	......	......	....	....
Nyack	5,603	9	......	1	11.1	1	111	....	1
Ramapo	6,600	6	......	1	20.0	......	......	....	....
Rest of district	275,000	457	20.0	70	11.0	32	70	2	6
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	526	16.2	77	14.4	37	71	3	10
WATERTOWN	17,000	28	......	6	21.4	2	72	....	1
Ellisburgh	4,223	14	......	1	7.1	1	71	1	....
Cape Vincent	3,000	5	......	1	......	0	......	....	....
Clayton	4,250	5	......	0	......	0	......	....	....
OGDENSBURG	12,000	21	......	8	38.1	2	95	....	....
Gouverneur	6,000	16	......	2	12.5	1	62	....	1
Potsdam	4,000	7	......	1	14.2	0	......	....	....
Canton	6,013	16	......	1	6.2	1	62	1	....
Malone	5,000	13	......	3	23.0	3	230	....	....
Plattsburg	8,400	16	......	1	6.2	0	......	....	....
Glens Falls	12 500	24	......	3	12.5	3	125	....	....
Whitehall	4,500	6	......	3	50.0	2	333	....	....
Fort Edward	4,500	4	......	0	......	0	......	....	....
Kingsbury	5,112	7	......	1	14.2	1	140	....	1
Granville	5,281	10	......	1	10.0	2	200	....	1
Greenwich	4,500	14	......	0	......	2	142	1	1
Lowville	4,000	7	......	0	......	0	......	....	....
Rest of district	280,000	313	13 5	45	14.3	17	55	....	5
MOHAWK VALLEY DISTRICT									
Totals	395,000	595	18.2	95	16.1	24	40	2	7
SCHENECTADY	28,791	54	......	14	25.5	3	55	....	3
Cobleskill	3,436	9	......	2	22.2	1	111	....	....
AMSTERDAM	20,000	37	......	8	21.6	2	54	....	....
Fort Plain	3,000	....	......	......	......	......	......	...	....
JOHNSTOWN	7,768	8	......	0	......	0	......	....	....
GLOVERSVILLE	15,000	28	......	7	25.0	1	36	....	....
LITTLE FALLS	12,000	15	......	3	20.0	0	......	....	....
Herkimer	5,150	8	......	2	25.0	0	......	....	....
Ilion	4,057	4	......	1	25.0	0	......	....	....
UTICA	55,000	108	23.5	22	20.3	2	18	....	....
Whitestown	5,225	3	......	0	......	0	......	....	....
ROME	14,000	17	......	0	......	0	......	....	....
Boonville	3,512	6	......	0	......	0	......	....	....
Camden	3,675	6	......	1	16.7	0	......	....	....
Waterford	5,522	6	......	1	16.7	1	167	....	1
Mechanicville	3,000	6	......	2	33.3	1	167	....	...
Ballston Spa	3,527	1	......	0	......	0	......	....	....
Saratoga Springs	12,500	23	......	5	21.7	0	......	...	....
Rest of district	192,000	256	15.8	35	13.6	13	52	2	3
SOUTHERN TIER DISTRICT									
Totals	425,000	607	16.8	85	14.2	49	83	6	3
BINGHAMTON	45,000	85	......	21	25.0	14	165	....	....
Owego	6,000	13	......	1	7.7	0	......	...	....
Candor	3,525	8	......	0	......	0	......	....	....
Waverly	4,123	10	......	1	10.0	0	......	....	....
ELMIRA	40,000	54	......	7	13.0	1	19	1	....

FOR APRIL—(*Continued*)

Zymotic Diseases								Other Causes of Death										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	1	....	....	....	2	....	2	....	1	....	1	....	1	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	2	....	....	2	1	2	....	....	....	1	....
....	....	....	....	....	....	....	....	3	1	....	....	....	1	....	....	....	....	1
....	....	....	12	2	8	3	4	128	38	1	21	13	59	62	15	17	40	31
....	....	3	1	6	2	7	5	94	53	7	39	22	59	71	14	14	67	
....	....	....	....	....	....	1	....	9	1	....	1	1	4	5	2	1	1	1
....	....	....	....	....	....	....	....	1	....	....	1	....	1	4	2	....	3	1
....	....	....	....	....	....	....	....	1	....	....	2	....	....	....	....	....	2	....
....	....	....	....	....	....	....	....	1	1	....	1	....	....	....	....	....	1	1
....	....	1	....	....	....	....	1	3	3	....	5	1	2	4	....	....	1	....
....	....	....	....	....	....	....	....	6	1	....	....	2	....	1	....	1	2	2
....	....	....	....	....	....	....	....	2	1	1	....	....	....	....	....	....	2	1
....	....	....	....	....	....	....	....	2	2	....	3	....	2	3	2	....	....	1
....	....	....	....	....	....	2	1	1	....	....	2	1	3	....	2	....	....	1
....	....	....	....	....	....	....	....	8	1	....	1	....	1	1	....	1	3	....
....	....	1	....	2	....	....	....	4	4	1	....	....	5	6	....	....	....	1
....	....	....	....	....	....	1	1	2	....	....	1	....	....	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	1	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	1	4	....	....	....	1
....	....	....	....	....	....	....	1	....	2	....	....	3	2	1	....	....	....	....
....	....	....	....	....	....	....	....	....	2	....	3	....	....	4	....	....	3	....
....	....	....	....	....	....	....	....	1	1	....	1	....	1	....	....	....	2	1
....	....	1	1	4	2	3	1	53	34	5	18	13	36	87	6	10	47	37
....	....	1	1	....	2	6	5	137	59	11	34	34	60	80	27	22	51	56
....	....	....	....	....	....	....	....	12	7	1	3	2	5	7	....	2	5	7
....	....	....	....	....	....	1	....	1	2	....	....	....	1	2	1	1	....	....
....	....	....	....	....	1	1	....	8	2	3	2	....	3	8	1	....	2	6
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	3	....	....	....	1	1	1	....	....	1	1
....	....	1	....	....	....	....	....	6	....	....	1	1	3	6	2	2	2	4
....	....	....	....	....	....	....	....	4	1	1	1	3	3	1	....	....	....	1
....	....	....	....	....	....	....	....	2	1	....	....	....	....	1	....	....	1	3
....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	2	....	....	....
....	....	....	....	....	....	2	....	21	11	2	7	9	8	15	5	4	6	12
....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	1	....	....
....	....	....	....	....	....	....	....	1	2	1	1	1	2	4	2	....	2	1
....	....	....	....	....	....	....	....	1	....	....	....	....	2	2	....	....	1	....
....	....	....	....	....	....	....	....	1	....	....	1	....	....	2	....	....	1	1
....	....	....	....	....	....	....	....	2	....	....	1	....	1	....	....	1	....	....
....	....	....	....	....	....	1	....	1	2	....	1	....	1	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	7	6	....	1	....	....	2	....	2	3	2
....	....	....	1	....	1	1	5	67	18	3	14	15	29	29	14	9	27	18
1	....	2	4	3	7	16	7	94	36	8	33	47	80	91	23	25	63	56
....	....	2	....	....	1	10	1	16	4	1	7	2	9	15	2	1	7	7
....	....	....	....	....	....	....	....	1	1	....	1	1	2	2	1	....	2	2
....	....	....	....	....	....	....	....	3	....	....	....	2	1	1	....	....	1	....
....	....	....	....	....	....	....	....	2	1	....	1	1	2	....	....	1	1	1
....	....	....	....	....	....	....	....	10	4	1	2	6	5	8	1	2	5	9

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	4	......	0	......	0	......	....	....
HORNELLSVILLE	12,000	16	......	3	18.5	0	......	....	....
Bath	3,261	10	......	1	......	0	......	....	....
CORNING	10,025	18	......	5	27.7	2	111	1	....
Wellsville	5,033	6	......	0	......	1	167	....	....
OLEAN	10,000	16	......	3	18.5	1	62	1	....
Salamanca	3,700	2	......	1	50.0	1	500	....	....
DUNKIRK	14,000	23	......	10	43.5	7	304	1	1
JAMESTOWN	18,627	......	......	......	......	......	......	....	....
Westfield	3,000	3	......	1	33.3	1	333	1	....
Fredonia	3,400	8	......	1	12.5	0	......	....	....
Rest of district	250,000	331	15.6	31	9.3	21	65	1	2
EAST CENTRAL DISTRICT									
Totals	415,000	587	16.7	87	15.1	32	56	4	5
SYRACUSE	120,000	162	18 0	34	21.2	14	87	3	1
Baldwinsville	3,040	3	......	0	......	0	......	....	....
De Witt	5,182	7	......	1	14.3	1	143	....	1
CORTLAND	8,600	9	......	1	11.1	2	222	....	....
Homer	3,000	1	......	0	......	0	......	....	....
Oneida	6,100	8	......	0	......	0	......	....	....
Hamilton	4,110	7	......	1	14.3	1	143	....	....
Cazenovia	3,803	8	......	1	14.3	0	......	....	....
Brookfield	3.235	5	......	1	20.0	0	......	....	....
Norwich	6,000	9	......	1	11.1	0	......	....	....
Oneonta	8,000	5	......	0	......	0	......	....	....
Worcester	2,670	......	......	......	......	0	......	....	....
Cooperstown	3,000	5	......	1	20.0	0	......	....	....
Walton	4,811	2	......	1	......	......	......	....	....
Delhi	3,000	9	......	1	11.1	0	......	....	....
Liberty	3,500	7	......	0	......	0	......	....	....
Rest of district	230,000	340	17.5	44	13.3	14	42	1	3
WEST CENTRAL DISTRICT									
Totals	325,000	398	15.0	43	21.2	18	45	1	1
AUBURN	35,000	46	......	12	26.1	4	87	....	....
ITHACA	13,460	26	......	1	4.0	0	......	....	....
Hector	4 832	9	......	1	11.0	0	......	....	....
Waterloo	4,350	3	......	0	......	0	......	....	....
Seneca Falls	6,500	9	......	1	11.1	0	......	....	....
GENEVA	11,800	7	......	1	14.3	0	......	....	....
Canandaigua	5,868	......	......	......	......	......	......	....	....
Manchester	4,181	7	......	1	14.3	0	......	....	....
Phelps	5,150	9	......	0	......	0	......	....	....
Penn Yan	4,800	4	......	0	......	0	......	....	....
Batavia	7,221	17	......	2	11.8	2	118	....	....
Dansville	3,758	6	......	0	......	0	......	....	....
Le Roy	3,000	1	......	0	......	0	......	....	....
Warsaw	4,700	4	......	2	50.0	2	500	1	....
Rest of district	212,000	250	14.2	22	8.8	10	40	....	1
LAKE ONTARIO AND WESTERN DISTRICT									
Totals	890,000	1,191	14.4	224	19.0	65	55	5	10
BUFFALO	370,000	446	14.5	108	24.2	29	65	3	3
TONAWANDA	9,000	7	......	2	14.3	0	......	....	....
Amherst	4,000	5	......	0	......	1	200	....	....

FOR APRIL—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	1	1	....	1	....	......	......	....	....	1	....
....	....	....	....	....	....	....	....	1	......	1	......	4	1	2	1	1	2	3
....	....	....	....	....	....	....	....	2	1	....	......	....	3	1	....	....	2	1
....	....	....	....	....	....	1	....	4	1	2	......	1	1	3	1	....	2	1
....	....	....	....	....	....	1	....	1	......	....	1	....	2	1	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	3	......	3	2	2	1	3
....	....	....	....	....	....	....	1	......	1	....	......	....	......	......	....	....	....	....
....	....	....	....	....	5	....	....	2	......	1	2	1	3	2	....	1	2	2
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	1	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	1	....	1	1	....	1	....	3
1	....	....	4	3	1	4	5	51	20	2	17	26	49	51	15	16	39	24
....	....	3	4	5	3	4	4	107	52	4	42	47	80	80	25	25	52	41
....	....	1	2	2	2	2	1	23	17	....	15	14	21	15	8	7	9	19
....	....	....	....	....	....	....	....	1	......	....	......	....	......	1	1	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	1	1	2	....	1
....	....	1	....	....	....	1	....	1	2	1	......	....	2	......	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	1	......	......	....	....	....	....
....	....	....	....	....	....	....	....	2	1	....	1	1	......	1	....	....	2	....
....	....	....	1	....	....	....	....	3	......	....	......	1	1	......	....	....	....	1
....	....	....	....	....	....	....	....	......	3	....	......	1	1	1	....	....	2	....
....	....	....	....	....	....	....	....	1	......	....	......	1	1	1	1	....	....	....
....	....	....	....	....	....	....	....	2	1	....	......	1	1	1	....	1	1	1
....	....	....	....	....	....	....	....	1	2	....	......	....	......	1	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	......	....	1	1	......	2	....	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	....	......	1	....	....	....	....
....	....	....	....	....	....	....	....	3	......	....	2	1	3	......	....	....	....	....
....	....	....	....	....	....	....	....	2	1	....	......	1	1	1	1	....	....	....
....	....	1	1	3	1	1	3	66	25	3	23	24	48	54	13	15	36	19
....	....	3	3	....	5	4	1	60	29	3	28	19	61	68	15	14	53	30
....	....	....	....	....	4	....	....	10	3	....	3	2	6	7	....	1	6	4
....	....	....	....	....	....	....	....	4	2	....	......	2	3	4	3	3	3	2
....	....	....	....	....	....	....	....	2	......	....	1	1	......	1	1	....	1	2
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	1	....	1	....
....	....	....	....	....	....	....	....	1	......	....	1	1	1	3	....	....	....	2
....	....	....	....	....	....	....	....	......	......	1	1	....	2	1	....	....	....	2
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	1	3	1	....	....	....	1
....	....	....	....	....	....	....	....	3	1	....	1	....	1	3	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	1	2	1	....
....	....	....	....	....	....	2	....	1	2	....	2	1	3	1	....	3	2	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	3	1	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	1	....
....	....	1	....	....	....	....	....	......	1	....	......	....	......	......	....	....	....	1
....	....	2	3	....	1	2	1	39	19	2	19	11	40	44	8	5	37	16
....	....	6	15	3	6	5	15	234	101	12	103	89	129	140	58	44	99	117
....	....	4	7	....	2	3	7	94	36	6	32	40	39	53	20	16	33	48
....	....	....	....	....	....	....	....	2	......	....	1	....	......	1	....	....	1	2
....	....	1	....	....	....	....	....	1	......	....	2	....	......	......	....	....	1	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes		
								Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Con.*)									
NORTH TONAWANDA	9,000	6	......	3	50.0	0	......	....	....
LOCKPORT	16,088	28	......	1	3.6	0	......	....	....
NIAGARA FALLS	16,000	32	......	7	21.8	4	125	....	....
Medina	4,500	5	......	1	20.0	1	200	1	....
Albion	4,536	5	......	1	20.0	0	......	....	....
Brockport	3,742	11	......	1	9.1	0	......	....	....
ROCHESTER	180,000	278	18.8	45	16.2	8	288	....	2
Palmyra	4,173	10	......	1	10.0	0	......	....	....
Newark	4,600	7	......	1	14.3	0	......	....	....
Lyons	6,127	2	......	0	......	0	......	....	....
Clyde	3,000	5	......	3	60.0	0	......	....	....
OSWEGO	22,000	46	......	7	15.2	0	......	....	....
Fulton	4,214	....	......	......	......	0	......	....	....
Richland	3,637	4	......	0	......	0	......	....	....
Rest of district	231,000	294	15.0	43	15.1	22	77	1	5
Totals for the state	7,400,000	12,486	20.5	3,376	27.1	1,069	86	61	96
Average for five years past	....	10,346	19.0	2,465	29.0	1,020	100	71	92

REMARKS—After an average daily mortality for the first three months of the year of 382, that of April has risen to 416; the increase however began in March whch had a daily mortality of 420. The daily rate for the first two months of the year was 362; of the last two, 418. Compared with the corresponding period of last year, the larger mortality then occurred in January and February, which exceeded that of March and April at the rate of 50 deaths a day, which is less by six than the increase this year in March and April over the first two months. There were about 2,000 more deaths in the four months this year than last.

The death rate for the current month is 20.5 per 1,000 population annually, which is about the rate of the past two months combined, against 18.3 for the two months preceding, and an increase of 4,000 in the number of deaths over the combined deaths of January and February.

Relatively the mortality from the zymotic diseases has been nearly the same in the two periods. There has, however, been a very large increase in all local diseases; acute respiratory diseases especially, the mortality from which has been greater by 2,500. There were 1,000 more deaths from other local diseases, mostly those of the digestive and circulatory systems. There has been a large increase likewise in the number of deaths from old age and from unclassified diseases, about 500 from each in the two last months above those of January and February. There was no relative increase in the mortality from puerperal diseases, cancer and violence.

The average mortality of these four months has not shown this marked deviation in past years. Taking the average of 10 years (1887-1896) the death rates have been for January, 18.7; February, 18.4; March, 19.0; and April, 19.0; and during that period they were the largest death rates in the year excepting during July and August. While these rates show an increase in March and April over January and February, in the decade of a year earlier the converse was measurably true, the death rates being in the order of months, 20.0; 19.6; 19.0; 20.0. During this period the lowest relative zymotic mortalities of the year have prevailed, not exceeding 13.0 per cent of the total deaths. The increases have been chiefly in acute respiratory diseases, and have been due in good measure to the epidemics of grippe which have regularly recurred for the past 10 years at this season; and the mortalities have varied as the height of the epidemic has fallen on one or the other of the four months.

The epidemic of grippe of the present season began in December, during which month it was the reported cause of deaths and was estimated to have caused 600 deaths; it continued in January and 1,000 deaths were attributed to it. In February the daily deaths increased from 340 to 385 and those from acute respiratory diseases from 70 in January to 85; it may be estimated that 1,250 deaths occurred from grippe in February. In March there were 420 deaths daily and almost one-fourth of them, or 100 deaths a day, were from acute respiratory diseases, or 900 more than the average of the preceding five years. There have been but three months in the records of this Board in which the number of deaths from this group of diseases has exceeded that of March; in February, 1890, there were 3,847; in January, 1892, there were 3,800, and in April, 1891, there were 4,357, or about one-third of the deaths from all causes These were months of the height of severe epidemics, and between 4,000 and 5,000 of the extraordinary mortality

FOR APRIL—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diptheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	2	1	....	1	....	......	1	....	....	1	....
....	....	....	....	....	....	....	....	4	4	....	1	3	4	5	2	....	3	2
....	....	....	3	....	....	....	1	5	5	....	2	5	2	1	....	2	2	4
....	....	....	....	....	....	....	....	......	......	....	1	....	......	1	1	....	1	....
....	....	....	....	....	....	....	....	1	......	....	1	1	......	......	1	....	....	1
....	....	....	....	....	....	....	....	3	......	....	1	....	1	1	2	1	1	1
....	....	1	....	....	1	1	3	52	23	2	28	16	41	37	18	12	21	20
....	....	....	....	....	....	....	....	1	1	....	1	1	......	3	....	1	1	1
....	....	....	....	....	....	....	....	1	1	....	1	....	1	1	....	1	1	....
....	....	....	....	....	....	....	....	1	......	....	......	1	......	......	....	....	....	....
....	....	....	....	....	....	....	....	3	......	....	......	....	1	......	....	....	....	1
....	....	....	....	....	....	....	....	7	5	....	4	5	8	3	2	2	4	6
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	3	......	....	......	....	1	......	....	....	....	....
....	....	....	5	3	3	1	4	54	25	4	27	17	31	33	12	9	29	31
23	1	92	191	94	117	277	117	2,962	1,302	125	852	860	1,080	1,270	410	469	578	1,509
28	2	88	132	47	94	316	150	1,983	1,171	94	676	728	939	1,138	321	447	499	1,330

occuring in them was attributed to grippe, It may be estimated that 3,500 of the deaths of March were from this cause. The acute respiratory mortality of April was very little below that of March, 99 deaths daily, so that comparing the mortality from causes which are increased by this epidemic disease with the averages of those and other co-existing diseases (by which means only its prevalence can be computed since a comparatively small number are reported from it direct) it is estimated that in April there were 3,250 deaths from grippe. It has been unusually prolonged, since the acme of epidemics has seldom lasted at a high rate beyond one month. This has caused a remarkable mortality, amounting on the estimates made to almost 10,000 deaths since the onset of the epidemic in December last. The largest number of deaths credited to one epidemic heretofore in this state was in 1891, when 8,000 occurred from it, likewise the same number in the year following. The subsequent years have been estimated to have had from 3,000 to 6,000 deaths in their annual recurrences of disease.

Other groups of diseases increased have been the unclassified, which in the months of March and April exceed those of January and February by 500. Old age has been credited with 300 excess, and in many cases the deaths thus recorded were returned as due to grippe, occurring at quite advanced age. The enfeebled conditions of those placed in these two groups contributed to a fatal result from this disease. For a similar reason in part there were 400 more deaths from consumption, but March and April are commonly months of highest mortality from it.

In the sanitary districts the Maritime had the largest proportion of deaths from acute respiratory diseases, 27.0 per cent; the Southern tier, Adirondack and West central districts the lowest, about 15.0 per cent. of the deaths from all causes, in the past two months. The mortality was lowest in the more rural part of the state.

The zymotic diseases caused 9.3 per cent of the total deaths in April and all of the important diseases of this group have decreased from March. Diphtheria has lessened in mortality each month of the year and is below the average for April.

Smallpox since the last report has appeared as follows: One case at White Plains of untraced origin; three at Buffalo by steamer from Chicago; five at Coeymans among negro laborers in brick yards coming from Philadelphia or further south; one at Oneonta contracted at San Francisco; one at Haverstraw, a negro brick yard laborer coming from Newport News; four at Tarrytown; and one at Dobbs Ferry—all except the first have developed during May, and all so far as traced directly imported from without the state. There was one death during April from smallpox in New York city, where during April and May 13 cases have been reported. The brick yards of the Hudson valley, employing negroes brought from possibly infected places in southern states, should be placed under protective restrictions regarding these imported laborers. No spread either last year or thus far this year has occurred in the surrounding white population but has only been prevented by vigilance. While the mortality from smallpox is fortunately very small, from the generally mild type of the disease, it illustrates very well the cost of sickness to a community, especially from an infectious disease of this nature.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,935,000	6,297	18.0	2,363	25.4	636	100	23	36
CITY OF NEW YORK Totals	3,654,594	5,901	19.0	2,267	38.4	601	101	22	35
BOROUGH OF MANHATTAN	2,207,241	3,346	19.6	1,158	34.6	310	93	8	16
BOROUGH OF THE BRONX	174,370	357	24.0	94	26.3	54	150	1	2
BOROUGH OF BROOKLYN	1,267,158	1,861	17.4	622	33.4	197	106	12	15
BOROUGH OF QUEENS	136,559	232	20.0	66	28.5	28	125	1	2
BOROUGH OF RICHMOND	69,266	105	18.0	27	25.7	12	114	....	....
Oyster Bay	15,000	....	*	......	......	......	......	....	....
Hempstead	24,000	34	......	6	17.6	2	59	....	....
North Hempstead	8,726	9	......	5	55.5	2	222	....	....
Southold	7,671	4	......	0	......	0	......	....	....
Sag Harbor	3,000	8	......	3	37.5	0	......	....	....
Huntington	8,253	10	......	2	20.0	2	200	....	....
Brookhaven	13,500	15	......	1	6.7	2	130	....	....
YONKERS	45,000	45	......	12	26.6	2	45	....	....
Greenburgh	12,000	25	......	5	16.7	2	55	....	1
MOUNT VERNON	15,513	24	......	11	45.6	7	300	....	....
Port Chester	7,547	19	......	7	36.8	1	52	....	....
Sing Sing	9,500	7	......	2	28.5	1	142	1	....
NEW ROCHELLE	10,000	19	......	6	31.6	1	52	....	....
Peekskill	10,000	17	......	4	23.5	2	117	....	....
White Plains	4,042	9	......	3	33.3	1	111	....	....
Rest of district	90,000	151	19.5	29	19.3	10	66	....	....
HUDSON VALLEY DISTRICT Totals	700,000	1,042	17.5	205	19.5	118	113	9	22
ALBANY	100,000	152	17.8	24	15.8	18	118	1	4
COHOES	25,000	31	......	8	26.5	6	200	1	2
TROY	65,000	136	24.0	29	21.3	11	80	1	3
WATERVLIET	14,000	21	......	4	20.0	3	150	....	....
Green Island	4,500	9	......	2	22.2	4	444	....	1
Lansingburg	12,000	17	......	4	23.5	2	118	1	1
Hoosick Falls	7,014	10	......	3	30.0	......	......	....	....
RENSSELAER	8,000	15	......	3	20.0	2	166	....	2
Coxsackie	3,824	11	......	4	36.4	1	91	....	....
Catskill	5,000	14	......	4	28.5	2	143	....	....
HUDSON	10,000	11	......	3	27.3	1	91	....	....
KINGSTON	25,000	42	......	14	33.3	13	320	1	1
Ellenville	3,000	3	......	0	......	0	......	....	....
Marbletown	3,689	3	......	1	33.3	0	......	....	....
Rosendale	6,125	12	......	6	50.0	6	500	....	....
Esopus	5,035	3	......	0	......	2	666	....	....
Saugerties	4,237	8	......	1	12.5	0	......	....	....
POUGHKEEPSIE	25 000	38	......	10	26.3	4	105	1	....
Fishkill	12,000	28	......	8	27.8	3	167	....	1
Wappingers Falls	3,718	6	......	2	33.3	1	167	....	....
NEWBURGH	36,000	46	......	7	15.2	1	23	....	....
Port Jervis	9,327	15	......	4	26.7	1	65	....	....
MIDDLETOWN	12,000	17	......	2	11.8	1	59	1	....
Warwick	6,060	8	......	0	......	0	......	....	....
Goshen	4,646	7	......	0	......	0	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during May, 1900

In *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
25	1	54	95	33	63	220	86	1,180	812	64	470	501	441	583	198	370	104	938
23	1	54	85	32	61	214	74	1,118	765	63	441	478	401	520	185	346	84	899
8	....	27	40	24	26	124	37	672	407	35	253	292	210	259	112	212	40	544
4	1	7	2	1	5	28	3	47	101	1	14	17	33	33	10	9	6	32
7	....	19	31	6	25	54	28	338	216	26	155	148	128	189	55	87	30	292
4	....	1	6	1	3	5	5	40	25	1	14	14	21	29	7	27	5	21
....	....	....	6	....	2	3	1	21	16	....	5	7	9	10	1	11	3	10
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	1	1	....	....	....	4	4	....	3	1	4	8	2	....	2	4
....	....	....	1	....	....	....	1	2	......	....	2	....	......	......	....	....	1	2
....	....	....	....	....	....	....	....	......	......	....	......	2	......	......	1	....	....	1
....	....	....	....	....	....	....	....	3	1	....	1	....	......	......	....	....	....	3
....	....	....	....	....	....	1	1	......	2	....	1	....	1	2	....	1	....	1
....	....	....	....	....	1	1	....	2	3	....	1	1	1	1	....	1	2	1
....	....	....	....	....	....	....	2	6	5	....	5	2	4	9	3	5	2	2
....	....	....	....	....	....	....	1	5	3	....	4	1	1	3	1	3	....	2
....	....	....	7	....	....	....	....	3	2	....	1	2	......	3	2	1	1	2
....	....	....	....	....	....	1	....	9	2	....	......	....	2	3	....	....	1	1
....	....	....	....	....	....	....	....	1	2	....	1	....	......	1	....	1	....	....
....	....	....	....	....	....	1	....	......	2	....	1	1	4	2	1	1	1	5
....	....	....	1	....	....	1	....	4	......	....	1	2	1	4	....	1	....	2
....	....	....	....	....	....	....	1	2	......	...	......	2	1	2	....	1	....	....
2	....	....	....	....	1	1	6	21	21	1	8	9	21	25	3	9	10	13
1	....	2	31	2	15	22	14	153	130	6	62	67	105	136	46	44	76	99
....	....	....	9	....	....	4	....	14	25	....	14	10	15	26	6	10	3	1
....	....	....	....	....	....	1	2	4	3	....	3	....	4	3	1	3	1	3
....	....	....	....	....	2	4	1	22	24	1	11	7	8	12	8	5	10	17
....	....	....	....	1	1	....	1	6	2	....	1	1	1	1	....	1	2	3
....	....	....	....	....	....	....	3	1	2	....	......	....	1	......	....	....	....	1
....	....	...	....	....	....	....	....	2	3	....	2	....	1	3	2	....	1	1
....	....	....	...	....	....	....	....	3	......	....	......	1	2	1	....	....	2	1
....	....	....	....	....	....	....	....	......	2	....	2	....	2	1	2	....	1	3
....	....	....	....	....	....	1	....	3	1	....	......	....	1	3	....	....	....	2
....	....	....	....	....	2	....	....	2	2	....	......	1	1	......	1	....	2	3
....	....	....	....	....	....	1	....	2	1	....	......	2	1	1	1	....	1	1
....	....	....	7	....	4	....	....	6	2	....	2	5	6	1	....	3	1	3
....	....	....	....	....	....	....	....	......	1	....	......	....	......	2	....	....	....	....
....	....	....	....	....	....	....	....	2	......	....	......	....	......	......	....	....	1	....
1	....	....	4	....	1	....	....	4	......	1	......	....	......	......	1	....	....	....
....	....	....	2	....	....	....	....	......	......	....	......	1	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	3	....	1	1	......	2	....	....	....	....
....	....	....	2	....	....	....	1	10	1	2	1	....	3	6	2	1	2	6
....	....	....	3	....	....	1	....	1	4	....	3	2	3	2	1	2	1	4
....	....	....	....	....	....	....	1	1	......	....	1	....	1	......	1	....	....	1
....	....	....	....	....	1	....	....	10	5	....	3	5	2	5	2	3	6	4
....	....	....	....	....	1	....	....	1	2	...	2	....	3	2	....	1	2	1
....	....	....	....	....	....	....	....	......	2	1	2	2	3	4	....	1	....	1
....	....	....	....	....	....	....	...	1	......	....	1	2	2	2	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	2	....	1	......	....	1	1	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	5	......	1	20.0	2	400	1	1
Haverstraw	7,714	5	......	3	60.0	2	400	....	....
Nyack	5,603	3	......	0	......	0	......	....	....
Ramapo	6,600	8	......	3	37.5	3	375	....	1
Rest of district	275,000	358	15.0	55	15.1	27	77	1	5
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	500	15.0	70	14.1	40	80	7	12
WATERTOWN	17,000	35	......	8	23.0	5	143	2	2
Ellisburgh	4,223	7	......	0	......	0	......	....	....
Cape Vincent	3,000	3	......	0	......	0	......	....	....
Clayton	4,250	9	......	2	22.2	1	111	....	....
OGDENSBURG	12,000	9	......	1	11.1	1	111	....	1
Gouverneur	6,000	9	......	3	33.3	0	......	....	....
Potsdam	4,000	......	......	......	......	......	......	....	....
Canton	6,013	8	......	0	......	0	......	....	....
Malone	5,000	9	......	0	......	0	......	....	....
Plattsburg	8,400	16	......	4	25.0	1	62	....	1
Glens Falls	12,500	13	......	2	15.4	2	154	....	....
Whitehall	4,500	3	......	0	......	0	......	....	....
Fort Edward	4,500	9	......	1	11.1	1	111	....	....
Kingsbury	5,112	2	......	0	......	0	......	....	....
Granville	5,281	12	......	1	8.3	1	83	....	....
Greenwich	4,500	4	......	1	25.0	0	......	....	....
Lowville	4 000	3	......	......	......	......	......	....	....
Rest of district	280,000	349	15.0	47	13.4	28	80	5	8
MOHAWK VALLEY DISTRICT									
Totals	395,000	526	15.5	70	12.9	40	70	3	8
SCHENECTADY	28,791	32	......	6	18.7	4	125	....	....
Cobleskill	3,436	14	......	3	21.4	3	214	....	....
AMSTERDAM	20,000	26	......	5	19.2	1	38	....	....
Fort Plain	3,000	8	......	1	......	1	......	....	....
JOHNSTOWN	7,768	11	......	0	......	0	......	....	....
GLOVERSVILLE	15,000	12	......	2	16.7	0	......	....	....
LITTLE FALLS	12,000	5	......	1	20.0	1	200	....	1
Herkimer	5,150	3	......	1	33.3	2	666	1	1
Ilion	4,057	5	......	1	20.0	0	......	....	....
UTICA	55,000	98	......	23	23.5	7	72	....	....
Whitestown	5,225	7	......	2	28.5	1	142	....	....
ROME	14,000	26	......	3	11.4	4	152	1	....
Boonville	3,512	3	......	0	......	0	......	....	....
Camden	3,675	5	......	1	20.0	0	......	....	....
Waterford	5,522	12	......	2	16.7	1	83	....	1
Mechanicville	3,000	5	......	0	......	1	200	....	1
Ballston Spa	3,527	5	......	1	20.0	0	......	....	....
Saratoga Springs	12,500	20	......	4	20.0	2	100	....	1
Rest of district	192,000	229	14.0	33	13.8	12	40	1	1
SOUTHERN TIER DISTRICT									
Totals	425,000	606	16.7	100	16.5	47	76	2	7
BINGHAMTON	45,000	80	......	15	18.5	11	137	....	1
Owego	6,000	8	......	2	25.0	2	250	1	....
Candor	3,525	4	......	2	50.0	0	......	....	....
Waverly	4,123	10	......	1	10.0	0	......	....	....
ELMIRA	40,000	59	......	12	20.4	4	68	....	7

FOR MAY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	......	......	....	......	....	1	2	....	....	....	....
....	....	....	1	....	....	....	1	......	1	....	......	1	......	......	....	....	....	1
....	....	....	....	....	....	....	....	1	......	....	......	1	......	......	....	....	1	....
....	....	....	....	....	1	1	....	1	......	....	1	....	1	1	....	....	....	1
....	....	2	3	1	2	9	4	55	43	1	10	25	42	56	18	13	88	80
....	....	3	....	7	3	2	6	94	46	5	30	33	63	63	19	23	40	44
....	....	....	....	1	....	....	....	6	4	....	4	2	4	2	....	2	1	5
....	....	....	....	....	....	....	....	2	......	....	1	....	3	1	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	1	....	1	1
....	....	....	....	....	....	....	1	2	......	....	......	1	1	......	....	....	3	1
....	....	....	....	....	....	....	....	1	3	....	......	1	......	1	1	....	1	....
....	....	....	....	....	....	....	....	1	1	....	......	....	2	1	....	1	....	3
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	2	....	2	1	1	1	....	....	....	....
....	....	....	....	....	....	....	....	4	......	....	......	1	......	......	....	....	4	....
....	....	....	....	....	....	....	....	4	1	1	1	....	2	3	1	....	....	2
....	....	....	....	....	1	1	....	......	3	2	1	1	2	1	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	2	....	1	....	....
....	....	....	....	....	....	....	1	......	1	....	......	1	2	......	1	1	1	1
....	....	....	....	....	....	....	....	2	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	1	5	1	....	1	2	......	......	1	1	....	....
....	....	....	....	....	....	....	....	1	......	....	1	1	1	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	1	....	......	......	....	....	2	....
....	....	3	....	6	2	1	3	65	30	2	18	22	45	51	14	17	26	31
....	....	4	2	1	3	10	9	70	43	6	41	31	62	70	25	25	57	56
....	....	....	....	1	....	1	2	2	2	1	5	....	1	7	3	1	4	2
....	....	....	....	....	1	1	1	1	1	1	......	1	3	2	1	....	1	....
....	....	1	....	....	....	....	....	4	3	....	2	1	4	......	2	2	3	4
....	....	1	....	....	....	....	....	1	......	....	1	....	1	1	....	....	2	1
....	....	....	....	....	....	....	....	1	1	....	1	....	2	3	2	....	1	....
....	....	....	....	....	....	....	....	1	3	....	......	1	1	1	....	....	3	2
....	....	....	....	....	....	....	....	......	......	....	1	....	......	......	....	....	1	2
....	....	....	....	....	....	....	....	1	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	1	1	1	....	....	1	1
....	....	....	1	....	....	4	2	11	7	....	10	5	9	18	5	5	5	16
....	....	....	....	....	....	1	....	......	......	....	......	....	1	1	1	2	....	1
....	....	....	1	....	....	....	2	4	......	....	1	1	4	4	....	1	8	4
....	....	....	....	....	....	....	....	......	......	....	1	....	......	2	....	....	....	....
....	....	....	....	....	....	....	....	1	......	1	......	1	......	......	1	....	1	....
....	....	....	....	....	....	....	....	1	......	....	......	....	4	......	1	1	1	3
....	....	....	....	....	....	....	....	2	1	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	2	......	....	......	....	......	......	....	1	2	....
....	....	....	....	....	....	1	....	3	3	....	1	1	1	5	....	1	1	2
....	....	2	....	....	2	2	2	35	22	3	18	19	29	25	9	11	28	18
1	....	2	2	5	8	13	7	122	52	2	46	39	72	69	22	22	58	55
....	....	1	....	1	1	5	2	23	7	....	5	4	9	9	3	2	4	3
....	....	....	....	....	1	....	....	......	......	....	1	....	1	2	1	1	....	....
....	....	....	....	....	....	....	....	1	......	....	1	1	......	1	....	....	....	....
....	....	....	....	....	....	....	....	2	......	....	1	....	2	1	1	1	2	....
....	....	....	1	1	....	....	....	12	8	....	2	5	8	5	1	2	2	10

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic diseases per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	2,319	8	......	1	12.5	1	125	....	....
HORNELLSVILLE	12,000	9	......	2	22.2	2	......	....	....
Bath	3,261	2	......	0	......	0	......	....	....
CORNING	10,025	25	......	5	20.0	3	120	....	....
Wellsville	5,033	6	......	2	33.0	0	......	....	....
OLEAN	10,000	20	......	7	35.0	0	......	....	....
Salmanca	3,700	8	......	4	50.0	2	250	....	....
DUNKIRK	14,000	16	......	6	37.5	3	187	....	....
JAMESTOWN	18,627	28	......	5	14.8	1	35	....	....
Westfield	3,000	5	......	0	......	1	200	....	1
Fredonia	3,400	4	......	1	25.0	0	......	....	....
Rest of district	250,000	314	15.0	35	11.2	19	61	1	3
EAST CENTRAL DISTRICT									
Totals	415,000	516	15.0	73	14.1	40	78	4	3
SYRACUSE	120,000	172	1609	36	20.8	19	110	2	....
Baldwinsville	3,040	2	......	0	......	0	......	....	....
De Witt	5,182	4	......	0	......	0	......	....	....
CORTLAND	8,600	12	......	2	16.7	1	83	....	....
Homer	3,000	4	......	0	......	1	250	....	1
Oneida	6,100	6	......	2	33.3	2	333	....	....
Hamilton	4,110	10	......	1	10.0	2	200	....	....
Cazenovia	3,803	....	......	......	......	......	......	....	....
Brookfield	3,235	3	......	0	......	0	......	....	....
Norwich	6,000	10	......	0	......	0	......	....	....
Oneonta	8,500	5	......	0	......	0	......	....	....
Worcester	2,670	6	......	1	16.7	0	......	....	....
Cooperstown	3,000	4	......	0	......	0	......	....	....
Walton	4,811	....	......	......	......	......	......	....	....
Delhi	3,000	....	......	......	......	......	......	....	....
Liberty	3,500	12	......	0	......	0	......	....	....
Rest of district	230,000	266	13.2	31	11.7	15	56	2	2
WEST CENTRAL DISTRICT									
Totals	325,000	413	15.0	64	15.5	26	63	....	2
AUBURN	35,000	52	......	13	25.5	6	117	....	....
ITHACA	13,460	28	......	7	25.0	7	250	....	1
Hector	4,832	4	......	0	......	0	......	...	....
Waterloo	4,350	9	......	0	......	0	......	....	....
Seneca Falls	6,500	10	......	0	......	0	......	....	....
GENEVA	11,800	16	......	1	......	1	......	....	....
Canandaigua	5,868	6	......	0	......	0	......	....	....
Manchester	4,181	8	......	1	......	1	......	....	1
Phelps	5,150	7	......	2	......	1	......	....	....
Penn Yan	4,800	5	......	2	......	2	......	....	....
Batavia	7,221	16	......	1	......	6	......	....	....
Dansville	3,758	6	......	0	......	0	......	....	....
Le Roy	3,000	7	......	0	......	0	......	....	....
Warsaw	4,700	4	......	1	......	0	......	....	....
Rest of district	212,000	235	13.0	36	15.4	2	8	....	....
LAKE ONTARIO AND WESTERN DISTRICT									
Totals	890,000	1,038	13.3	209	20.9	77	72	3	12
BUFFALO	370,000	399	13.0	93	23.3	34	85	2	5
TONAWANDA	9,000	8	......	1	12.5	1	125	....	....
Amherst	4,000	4	......	1	25.0	0	......	....	....

FOR MAY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	1	....	....	....	....	....	....	....	....	....	2	1	....	2	2
....	....	....	....	....	....	....	....	2	1	....	2	1	1	....	....	1	....	1
....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....
1	....	....	....	....	....	2	....	5	1	....	2	4	3	3	....	2	1	1
....	....	....	....	....	....	....	....	....	....	....	1	....	1	1	....	....	2	1
....	....	....	....	....	....	....	....	7	....	....	....	....	....	3	1	1	8	5
....	....	....	....	....	1	....	1	2	....	....	....	1	....	1	1	....	1	....
....	....	1	....	....	2	....	....	3	1	....	2	3	....	2	....	....	....	2
....	....	....	....	1	....	....	....	9	3	....	2	1	2	3	....	....	3	4
....	....	....	....	....	....	....	....	1	....	....	....	1	....	1	....	....	....	1
....	....	....	....	....	....	....	....	2	1	....	1	....	....	....	....	....	....	....
....	....	....	1	1	3	6	4	52	29	2	26	18	45	35	13	12	38	25
....	....	4	8	3	6	4	8	81	57	3	40	27	60	72	29	13	42	52
....	....	....	5	3	5	2	2	30	16		12	13	15	23	10	3	11	20
....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	1	1	....	1	....	....
....	....	1	....	....	....	....	....	1	....	....	2	....	....	5	1	1	....	1
....	....	....	....	....	....	....	....	1	....	....	....	....	2	....	....	....	....	....
....	....	....	1	....	....	....	1	....	....	....	....	1	2	....	....	....	....	1
....	....	....	1	....	....	....	1	2	1	....	....	....	3	....	....	1	1	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	1	....
....	....	....	....	....	....	....	....	2	3	....	1	1	....	1	....	....	1	1
....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	....	2	1
....	....	....	....	....	....	....	....	1	....	....	1	....	1	1	1	....	....	1
....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	1	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	10	....	....	....	....	1	....	....	1	....
....	....	3	1	....	1	2	4	41	27	3	22	11	35	38	16	7	25	26
1	....	1	6	....	3	9	4	59	34	1	29	22	50	56	14	27	43	52
....	....	....	1	....	3	2	....	10	5	1	2	1	4	12	1	1	4	5
....	....	1	4	....	....	1	....	3	3	....	1	1	3	3	....	2	2	3
....	....	....	....	....	....	....	....	2	....	....	....	....	1	....	....	....	1	....
....	....	....	....	....	....	....	....	2	....	....	3	1	2	1	....	....	....	....
....	....	....	....	....	....	....	....	....	2	....	1	3	2	....	....	1	1	....
....	....	....	....	....	....	....	1	5	2	....	....	....	3	....	1	1	1	2
....	....	....	....	....	....	....	....	1	....	....	....	....	2	1	1	....	....	1
....	....	....	....	....	....	....	....	....	1	....	....	1	1	....	1	2	....	1
....	....	....	....	....	....	....	1	1	....	....	....	....	....	1	....	1	1	2
....	....	....	1	....	....	....	1	....	1	....	1	....	....	....	1	....	....	....
....	....	....	....	....	....	6	....	3	....	....	....	....	1	1	....	1	3	1
....	....	....	....	....	....	....	....	1	....	....	....	1	....	2	....	1	1	....
....	....	....	....	....	....	....	....	....	1	....	1	1	2	....	....	....	2	....
....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	1	....	1
1	....	....	....	....	....	....	1	31	19	....	20	12	29	34	9	16	27	36
....	....	1	17	1	10	10	23	140	110	9	67	77	130	151	39	57	72	109
....	....	....	5	....	....	6	16	51	49	4	21	25	41	53	19	28	25	49
....	....	....	....	....	....	....	1	....	1	....	....	....	2	1	....	....	2	1
....	....	....	....	....	....	....	....	....	1	....	....	....	1	1	....	....	....	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)									
NORTH TONAWANDA	9,000	12	......	5	41.6	1	83	....	....
LOCKPORT	16,088	16	......	3	18.5	1	62	....	....
NIAGARA FALLS	16,000	25	......	8	32.0	2	80	....	2
Medina	4,500	9	......	3	33.3	2	222	....	1
Albion	4,536	11	......	3	27.3	3	273	....	....
Brockport	3,743	1	......	0	......	0	......	....	....
ROCHESTER	180,000	200	13.1	31	15.5	6	30	....	1
Palmyra	4,173	....	......	......	......	......	......	....	....
Newark	4,600	11	......	0	......	0	......	....	....
Lyons	6,127	8	......	2	25.0	0	......	....	....
Clyde	3,000	7	......	1	14.2	0	......	....	....
OSWEGO	22,000	38	......	6	15.8	5	......	....	....
Fulton	4,211	14	......	4	28.5	2	142	....	....
Richland	3,637	4	......	1	25.0	0	......	....	....
Rest of district	231,000	271	13.5	53	20.0	20	80	1	3
Totals for the state	7,400,000	10,957	17.5	3,160	29.0	1,026	93	51	102
Average for five years past	....	9,512	17.0	2,451	25.3	971	102	60	79

REMARKS—The months of April and May are commonly very nearly the same in their average mortality, both that of the different causes of death and the total. The mortality of the present month was 1,532 less than that of April, the average number of deaths daily having been less by 63, and the death rate 17.5 against 20.5. The decrease has occurred in all the sanitary districts, but is largest in those having larger urban population, and the urban death rate for the entire state has fallen from 21.6 in April to 17.5, the rural being 15.4 this month against 16.1 in April. There were 200 fewer deaths under five years of age.

Zymotic diseases caused nearly the same mortality as in April. Diarrheal diseases were moderately increased, measles moderately diminished although continuing to be reported as extensively prevalent through much of the state and the deaths from it are above the average.

Acute respiratory diseases caused 1,900 deaths, which is less by 1,062 than in April. There were still 450 more deaths than the average for May and a far larger mortality than from any other group, being 17.4 per cent of all deaths; but in April it was 24.0 per cent. This comparative

FOR MAY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	1	....	....	3	......	1	2	1	1	1	....	1	....	1
....	....	....	....	....	....	1	....	......	3	1	......	....	4	4	....	1	1	1
....	....	....	....	....	....	....	....	7	1	....	1	2	1	4	2	3	1	1
....	....	....	....	....	....	....	1	......	......	....	1	1	1	......	....	1	....	3
....	....	....	3	....	....	....	....	2	2	....	1	....	......	1	....	1	1	...
....	....	....	....	....	....	....	....	......	......	....	1	....	......	......	....	....	....	....
....	....	....	....	....	4	1	....	27	28	1	13	20	24	41	7	6	14	13
...	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	5	3	....	1	....	......	......	....	2	....	....
....	....	....	....	....	....	....	....	1	1	....	1	1	......	1	3	....	1	1
....	....	....	....	....	....	....	....	......	2	....	......	1	......	1	....	....	2	1
....	....	....	....	....	1	2	2	6	1	....	1	5	7	4	....	3	2	4
....	....	....	....	....	2	....	....	4	1	....	1	....	3	2	....	1	....	....
....	....	....	....	....	....	....	....	1	1	....	......	....	......	1	....	....	1	....
...	....	1	9	1	2	....	3	33	16	2	23	21	45	36	10	10	22	33
28	1	71	163	52	111	290	157	1,902	1,285	96	786	797	986	1,203	393	583	495	1,405
32	3	89	133	37	78	315	145	1,451	1,138	86	666	709	904	1,076	344	514	443	1,210

decrease was greatest in the maritime districts, though still causing 18.7 per cent of its deaths; of 2,164 deaths in rural towns but 15.0 per cent were from this cause. Other local diseases were diminished by 300 deaths. Old age and unclassified diseases were together the cause of 173 fewer deaths.

Grippe has continued to prevail though decreased in severity and may be estimated to have caused approximately 1,500 deaths. It has affected the death rate of all parts of the state pretty uniformly.

Smallpox, one case, was reported June 7th in the town of Stockport, the subject being a negro laborer in a brickyard, coming from the south; also at Sayville on Long Island, June 16th, one case apparently contracted while traveling on train in Pennsylvania, and possibly taken from one of the train employees. In the localities last reported there is no extension of the disease and some are probably clear of it. One death from smallpox occurred during the month in New York city.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
MARITIME DISTRICT									
Totals	3,935,000	5,706	18.3	2,183	38.2	827	145	27	36
CITY OF NEW YORK									
Totals	3,654,594	5,307	17.6	2,083	39.3	781	147	27	35
BOROUGH OF MANHATTAN	2,207,241	2,782	17.0	1,043	37.2	319	115	12	19
BOROUGH OF THE BRONX	174,370	305	21.0	90	29.5	45	147	1	1
BOROUGH OF BROOKLYN	1,267,158	1,802	18.3	830	43.8	373	200	13	12
BOROUGH OF QUEENS	136,559	217	19.5	81	37.3	36	166	1	3
BOROUGH OF RICHMOND	69,266	111	19.5	39	35.4	8	73	....	....
Oyster Bay	15,000	36	*	8	22.2	2	55	....	....
Hempstead	24,000	18	......	5	27.8	3	167	....	1
North Hempstead	8,726	18	......	9	50.0	5	278	....	....
Southold	7,671	9	......	1	11.1	0	......	....	....
Sag Harbor	3,000	4	......	2	50.0	1	250	....	....
Huntington	8,253	10	......	0	......	0	......	....	....
Brookhaven	13,500	16	......	1	......	0	......	....	....
YONKERS	45,000	68	......	27	40.0	8	117	....	....
Greenburgh	12,000	13	......	3	23.0	0	......	....	....
MOUNT VERNON	15,513	20	......	4	20.0	3	150	....	....
Port Chester	7,547	14	......	4	28.5	2	285	....	....
Sing Sing	9,500	8	......	1	12.5	4	......	....	....
NEW ROCHELLE	10,000	15	......	5	33.3	0	331	....	....
Peekskill	10,000	10	......	2	20.0	2	100	....	....
White Plains	4,042	8	......	2	25.0	2	250	....	....
Rest of district	90,000	132	16.3	26	20.0	15	123	....	....
HUDSON VALLEY DISTRICT									
Totals	700,000	853	14.5	150	17.3	83	100	5	8
ALBANY	100,000	112	13.6	13	11.6	15	134	4	1
COHOES	25,000	28	......	10	35.7	4	143	1	1
TROY	65,000	113	21.0	22	19.5	14	100	....	3
WATERVLIET	14,000	17	......	3	17.7	2	177	....	....
Green Island	4,500	3	......	0	......	1	333	....	....
Lansingburg	12,000	15	......	1	6.6	2	132	....	....
Hoosick Falls	7,014	11	......	1	9.1	0	......	....	....
RENSSELAER	8,000	6	......	0	......	0	......	....	....
Coxsackie	3,824	5	......	0	......	1	200	....	....
Catskill	5,000	9	......	3	33.3	1	111	....	....
HUDSON	10,000	11	......	3	27.3	2	191	...	1
KINGSTON	25,000	33	......	9	27.3	3	90	....	....
Ellenville	3,000	4	......	0	......	0	......	....	....
Marbletown	3,689	6	......	3	50.0	0	......	....	....
Rosendale	6,125	11	......	3	27.3	3	273	...	....
Esopus	5,035	3	......	0	......	0	......	....	....
Saugerties	4,237	6	......	3	50.0	1	167	....	....
POUGHKEEPSIE	25,000	33	......	9	27.3	3	91	....	....
Fishkill	12,000	14	......	4	37.5	1	125	....	....
Wappingers Falls	3,718	5	......	0	......	0	......	....	....
NEWBURGH	36,000	23	......	7	33.3	0	......	....	....
Port Jervis	9,327	9	......	0	......	0	......	...	....
MIDDLETOWN	12,000	20	......	3	15.0	1	50	...	....
Warwick	6,000	8	......	1	12.5	1	125	...	....
Goshen	4,646	11	......	0	......	0	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during June, 1900

in *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
17	1	30	83	26	39	197	371	729	654	66	568	461	367	489	201	382	92	870
15	1	28	81	26	37	188	343	692	616	63	536	432	331	419	187	352	64	834
4	....	13	29	16	165	92	118	396	337	36	259	256	165	190	113	198	37	476
1	1	8	6	2	16	14	11	21	83	4	17	15	23	24	8	20	6	40
5	....	12	44	8	....	77	186	235	16	22	230	135	119	165	58	96	20	278
4	....	....	1	....	....	2	25	25	23	....	23	14	13	24	7	25	....	27
1	....	....	1	....	....	3	3	15	12	1	7	12	11	17	1	13	1	13
1	....	1	....	....	....	....	....	6	3	1	5	2	3	4	1	2	2	5
....	....	....	....	....	1	....	2	4	1	....	......	1	1	1	2	3	1	1
1	....	....	1	....	....	....	2	2	2	1	......	2	1	2	....	1	....	2
....	....	....	....	....	....	....	....	......	1	....	2	....	1	1	1	2	1	....
....	....	....	....	....	....	....	1	......	......	....	......	1	1	......	....	....	1	....
....	....	....	....	....	....	....	....	......	1	....	......	1	......	6	1	1	....	....
....	....	....	....	....	....	....	....	......	1	....	2	3	......	2	1	1	4	2
....	....	....	....	....	....	....	8	6	4	....	7	5	3	15	1	9	3	7
....	....	....	....	....	....	....	....	......	2	....	2	2	1	1	1	2	....	2
....	....	....	....	....	....	....	3	2	3	....	2	1	2	5	....	....	2	....
....	....	....	1	....	....	....	3	1	2	....	1	....	3	......	....	....	2	1
....	....	....	....	....	....	....	....	2	2	....	......	....	2	2	....	....	....	....
....	....	....	....	....	....	2	....	......	......	....	2	2	2	4	....	1	1	1
....	....	....	....	....	....	1	....	......	......	....	......	1	1	3	1	1	1	1
....	....	1	....	....	....	....	1	......	1	....	2	....	......	2	....	....	1	....
....	....	....	....	....	1	6	8	14	15	1	7	8	15	22	5	7	9	14
2	....	1	7	4	16	31	29	69	117	4	69	50	86	138	38	48	56	93
....	....	....	....	....	....	3	7	13	15	....	9	4	7	21	11	....	4	13
....	....	....	....	....	2	....	....	3	1	..	1	....	3	4	1	4	....	7
....	....	....	....	1	3	1	6	12	22	1	7	5	21	14	2	4	2	9
....	....	....	....	....	....	1	1	1	3	....	4	....	......	2	....	4	....	1
....	....	....	....	....	....	1	....	1	......	....	......	1	......	......	....	....	....	....
....	....	....	....	1	....	1	....	......	3	....	......	2	1	3	1	....	2	1
....	....	....	....	....	....	....	....	2	3	....	1	1	......	4	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	1	....	1	1	1	....	....	....
....	....	....	....	....	....	1	....	......	1	....	......	....	......	1	1	....	1	....
....	....	....	....	....	....	....	1	......	2	....	......	....	......	1	....	1	1	3
....	....	....	....	....	....	....	1	......	2	....	1	1	1	1	....	....	1	2
....	....	....	....	....	1	1	1	2	3	....	4	3	3	4	3	3	3	2
....	....	....	....	....	....	....	....	......	......	....	1	....	......	1	2	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	....	......	1	1	1	....	2
....	....	....	2	....	1	....	....	1	......	....	......	1	3	1	....	....	....	2
....	....	....	....	....	....	....	....	......	1	....	......	....	......	1	....	....	1	....
....	....	....	....	....	....	1	....	1	2	....	1	....	1	......	....	....	....	....
1	....	1	....	....	....	....	1	2	3	1	3	1	1	4	1	4	2	8
1	....	....	1	....	....	1	....	1	4	....	......	1	1	1	....	1	1	1
....	....	....	....	....	....	....	....	......	1	....	......	....	2	1	....	....	1	....
....	....	....	....	....	....	....	....	1	6	....	1	1	1	5	....	3	2	3
....	....	....	....	....	....	....	....	1	......	....	4	1	......	1	....	....	1	1
....	....	....	1	....	....	....	....	2	4	....	2	1	1	2	1	2	1	3
....	....	....	....	....	....	....	1	1	......	....	1	1	1	2	1	....	....	....
....	....	....	....	....	....	....	....	1	3	....	1	2	......	1	....	2	....	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,0 0 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	5	......	1	20.0	0	......	....	....
Haverstraw	7,714	11	......	4	......	......	......	....	....
Nyack	5,603	7	......	0	......	0	......	....	....
Ramapo	6,600	9	......	1	11.1	0	......	....	....
Rest of district	275,000	304	13.0	46	15.0	28	90	....	2
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	358	11.2	50	14.0	11	31	1	1
WATERTOWN	17,000	30	......	5	16.7	1	33	....	1
Ellisburgh	4,223	1	......	0	......	0	......	....	....
Cape Vincent	3,000	2	......	0	......	0	......	....	....
Clayton	4,250	2	......	0	......	0	......	....	....
OGDENSBURG	12,000	22	......	9	41.0	1	45	....	....
Gouverneur	6,000	4	......	1	25.0	0	......	....	....
Potsdam	4,000	3	......	0	......	0	......	....	....
Canton	6,013	9	......	1	11.1	0	......	....	....
Malone	5,000	9	......	1	1.11	0	......	....	....
Plattsburg	8,400	14	......	0	......	0	......	....	....
Glens Falls	12,500	14	......	2	14.3	0	......	....	....
Whitehall	4,500	5	......	1	20.0	0	......	....	....
Fort Edward	4,500	4	......	0	......	0	......	....	....
Kingsbury	5,112	2	......	0	......	0	......	....	....
Granville	5,281	5	......	1	20.0	0	......	....	....
Greenwich	4,500	5	......	0	......	0	......	....	....
Lowville	4 000	6	......	0	......	0	......	....	....
Rest of district	280,000	221	10.0	29	13.2	9	40	1	....
MOHAWK VALLEY DISTRICT									
Totals	395,000	412	12.5	60	14.5	25	60	1	2
SCHENECTADY	28,791	31	......	12	39.0	5	160	....	....
Cobleskill	3,436	2	......	0	......	0	......	....	....
AMSTERDAM	20,000	22	......	2	9.0	0	......	....	....
Fort Plain	3,000	......	......	......	......	......	......	....	....
JOHNSTOWN	7,768	3	......	1	3.33	1	333	....	....
GLOVERSVILLE	15,000	14	......	0	......	0	......	....	...
LITTLE FALLS	12,000	10	......	2	20.0	0	......	....	....
Herkimer	5,150	9	......	4	44.4	0	......	....	....
Ilion	4,057	4	......	0	......	0	......	....	....
UTICA	55,000	86	......	12	14.0	5	58	....	....
Whitestown	5,225	6	......	1	16.7	1	167	....	....
ROME	14,000	17	......	0	......	0	......	....	....
Boonville	3,512	5	......	1	20.0	0	......	....	....
Camden	3,675	4	......	0	......	0	......	....	....
Waterford	5,522	7	......	2	28.5	1	142	....	1
Mechanicville	3,000	3	......	0	......	1	333	....	....
Ballston Spa	3,527	1	......	0	......	0	......	....	....
Saratoga Springs	12,500	19	......	4	21.0	1	52	1	....
Rest of district	192,000	169	11.0	20	12.0	10	60	....	1
SOUTHERN TIER DISTRICT									
Totals	425,000	441	13.0	68	15.4	31	70	....	7
BINGHAMTON	45,000	58	......	5	8.6	8	137	....	1
Owego	6,000	3	......	1	33.3	0	......	....	....
Candor	3,525	4	......	1	25.0	0	......	...	....
Waverly	4,123	3	......	1	33.3	1	333	....	....
ELMIRA	40,000	38	......	7	18.5	4	105	....	3

for June—(*Continued*)

Zymotic Diseases								Other Causes of Death										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	......	......	....	......	....	2	1	1	....	....	1
....	....	....	....	....	....	....	....	......	......	....	3	1	2	1	....	....	....	4
....	....	....	....	....	....	....	....	......	......	....	......	2	1	......	1	1	2	....
....	....	....	....	....	....	....	....	......	2	....	......	....	1	3	1	1	....	1
....	....	....	3	2	9	2	10	22	35	2	24	21	32	56	8	17	31	28
1	....	....	....	4	....	1	3	49	41	3	25	23	38	54	22	20	34	38
....	....	....	....	....	....	....	....	4	3	....	......	1	4	5	4	1	3	4
....	....	....	....	....	....	....	....	......	......	....	1	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	1	....	......	1	....	....	....	....
....	....	....	....	....	....	....	1	5	1	....	1	1	......	3	....	5	1	4
....	....	....	....	....	....	....	....	2	......	....	......	....	1	1	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	....	1	......	....	....	1	....
....	....	....	....	....	....	....	....	2	1	....	1	....	......	2	1	....	2	....
....	....	....	....	....	....	....	....	2	1	....	......	....	1	1	....	1	2	1
....	....	....	....	....	....	....	....	2	2	....	3	....	......	4	1	1	....	1
....	....	....	....	....	....	....	....	4	1	1	1	2	......	2	....	1	....	3
....	....	....	....	....	....	....	....	2	......	....	1	....	......	1	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	1	....	1	1	1	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	3
....	....	....	....	....	....	....	....	1	1	....	......	....	1	......	2	....	....	....
....	....	....	....	....	....	....	....	......	2	....	......	1	......	......	1	1	....	....
....	....	....	....	....	....	....	....	......	......	....	3	1	......	1	....	....	1	....
1	....	....	....	4	....	1	2	25	28	2	12	17	28	32	12	10	22	3
....	....	1	4	1	....	6	10	35	38	4	32	24	64	58	21	35	28	48
....	....	....	....	1	....	2	2	......	3	....	......	....	2	4	3	5	....	9
....	....	....	....	....	....	....	....	......	......	....	......	2	......	......	....	....	....	....
....	....	....	....	....	....	....	....	5	......	....	3	....	2	3	2	3	1	3
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	1	....	....	....	....	......	......	....	......	....	......	......	....	....	1	1
....	....	....	....	....	....	....	....	4	1	1	2	1	3	1	....	1	....	....
....	....	....	....	....	....	....	....	2	2	....	......	1	3	......	....	....	2	....
....	....	....	....	....	....	....	....	4	......	....	2	....	2	......	....	....	....	1
....	....	....	....	....	....	....	....	......	......	....	1	....	1	......	....	2	....	....
....	....	....	1	....	....	3	1	8	10	1	7	5	12	10	5	8	4	11
....	....	....	....	....	....	1	....	......	1	....	1	....	1	......	....	....	1	1
....	....	....	....	....	....	....	....	......	......	....	1	....	3	3	....	4	4	2
....	....	....	....	....	....	....	....	......	1	....	......	....	1	1	....	....	....	2
....	....	....	....	....	....	....	....	......	1	....	......	....	1	1	....	....	1	....
....	....	....	....	....	....	....	....	1	......	....	2	....	1	......	....	1	....	1
....	....	....	....	....	....	....	1	......	......	....	......	....	......	1	....	1	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	2	2	....	2	1	3	2	1	1	....	4
....	....	1	2	....	....	....	6	9	17	2	11	14	28	32	10	9	14	13
1	....	3	4	....	2	8	6	48	26	4	49	30	61	65	25	20	32	50
....	....	3	....	....	....	4	....	9	4	....	3	5	5	6	4	2	6	6
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	1	....	1	1
....	....	....	....	....	....	....	....	1	......	....	......	1	1	......	1	....	....	....
....	....	....	....	....	1	....	....	......	......	....	......	....	2	......	....	....	....	....
....	....	....	....	....	....	1	1	4	3	....	6	1	4	9	2	1	....	3

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	8	......	2	25.0	0	......	....	....
HORNELLSVILLE	12,000	16	......	2	12.5	0	......	....	....
Bath	3,261	1	......	0	......	0	......	....	....
CORNING	10,025	17	......	5	30.0	3	176	....	....
Wellsville	5,033	5	......	0	......	0	......	....	....
OLEAN	10,000	17	......	2	11.8	2	118	....	1
Salamanca	3,700	1	......	0	......	......	......	....	....
DUNKIRK	14,000	12	......	6	50.0	1	83	....	....
JAMESTOWN	18,627	27	......	8	27.3	3	111	....	1
Westfield	3,000	1	......	0	......	0	......	....	....
Fredonia	3,400	5	......	1	20.0	1	200	....	....
Rest of district	250,000	225	12.5	27	12.0	8	36	....	2
EAST CENTRAL DISTRICT Totals	415,000	421	12.2	62	14.7	43	104	1	3
SYRACUSE	120,000	127	12.7	22	17.3	18	140	1	1
Baldwinsville	3,040	3	......	0	......	0	......	....	....
De Witt	5,182	5	......	2	50.0	0	......	....	....
CORTLAND	8,600	7	......	3	42.8	0	......	....	....
Homer	3,000	2	......	0	......	0	......	....	....
Oneida	6,100	8	......	0	......	0	......	....	....
Hamilton	4,110	5	......	2	40.0	0	......	....	....
Cazenovia	3,803	4	......	0	......	0	......	....	....
Brookfield	3,235	2	......	0	......	0	......	....	....
Norwich	6,000	8	......	1	12.5	1	125	....	....
Oneonta	8,000	2	......	0	......	0	......	....	....
Worcester	2,670	3	......	0	......	0	......	....	....
Cooperstown	3,000	6	......	1	16.7	1	167	....	....
Walton	4,811	7	......	3	42.8	0	......	....	....
Delhi	3,000	5	......	0	......	0	......	....	....
Liberty	3,500	14	......	2	10.0	0	......	....	....
Rest of district	230,000	213	11.5	26	12.2	23	108	....	2
WEST CENTRAL DISTRICT Totals	325,000	339	12.6	38	11.3	21	63	1	3
AUBURN	35,000	35	......	11	31.4	5	142	....	....
ITHACA	13,460	11	......	2	18.2	0	......	....	....
Hector	4,832	3	......	0	......	0	......	....	....
Waterloo	4,350	3	......	0	......	0	......	....	....
Seneca Falls	6,500	4	......	1	25.0	1	250	....	....
GENEVA	11,800	11	......	1	9.0	1	91	....	....
Canandaigua	5,868	8	......	2	25.0	0	......	....	....
Manchester	4,181	8	......	1	12.5	0	......	....	....
Phelps	5,150	3	......	1	33.3	0	......	....	....
Penn Yan	4,800	4	......	0	......	1	250	....	1
Batavia	7,221	11	......	2	22.2	1	111	....	....
Dansville	3,758	4	......	0	......	......	......	....	....
Le Roy	3,000	4	......	0	......	0	......	....	....
Warsaw	4,700	3	......	0	......	0	......	....	....
Rest of district	212,000	227	13.0	17	8.0	12	53	1	2
LAKE ONTARIO AND WESTERN DISTRICT Totals	890,000	914	11.2	190	20.6	83	92	3	5
BUFFALO	370,000	362	11.9	99	27.5	46	128	2	4
TONAWANDA	9,000	5	......	1	20.0	0	......	....	....
Amherst	4,000	5	......	0	......	0	......	....	....

FOR JUNE—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	1	....	....	1	1	3	....	....	1	....	1
....	....	....	....	....	....	....	....	2	....	....	1	3	2	2	2	1	1	2
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
1	....	....	....	....	....	2	....	4	2	....	1	....	2	3	1	....	....	1
....	....	....	....	....	....	....	....	2	....	....	1	....	2	....	....	....	....	....
....	....	....	....	....	....	....	1	1	....	....	2	2	....	3	....	....	1	6
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	1	....	....	3	....	....	....	1	....	....	2	3	....	2
....	....	....	....	....	....	....	2	4	1	....	2	....	4	4	3	....	3	3
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	....	2	....	....	....	....	2	....	....	....	....
....	....	....	4	....	....	1	1	17	14	4	30	16	35	36	9	12	19	25
4	....	2	10	1	3	6	13	32	54	....	47	24	50	53	25	25	33	35
2	....	....	6	1	2	1	4	11	16	....	17	7	11	18	7	10	3	9
....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....	1	2	1
....	....	....	....	....	....	....	....	1	1	....	....	....	2	....	....	....	1	2
....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	2	....	1	....	1	....
....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	3	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	2	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	....
1	....	....	....	....	....	....	....	....	2	....	1	....	2	....	....	....	1	1
....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	....
....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	1
....	....	....	....	....	....	....	1	....	1	....	1	....	1	1	....	....	1	....
....	....	....	....	....	....	....	....	....	1	....	1	1	....	1	....	....	1	2
....	....	....	....	....	....	....	....	1	2	....	1	....	....	1	....	....	....	....
....	....	....	....	....	....	....	....	1	9	....	1	....	....	....	....	1	1	1
1	....	2	4	....	1	5	8	15	21	....	21	12	29	31	16	11	17	17
....	....	2	6	1	2	4	2	23	35	1	24	23	51	65	16	17	31	32
....	....	....	4	....	....	1	....	4	3	1	4	....	4	8	3	....	2	1
....	....	....	....	....	....	....	....	1	....	....	....	1	3	4	....	....	2	....
....	....	....	....	....	....	....	....	....	1	....	....	1	....	1	....	....	1	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	1
....	....	....	....	....	....	1	....	....	1	....	....	....	....	1	....	....	....	1
....	....	....	....	....	....	....	....	1	1	....	1	1	3	2	....	....	....	1
....	....	....	....	....	....	....	....	1	1	....	2	....	1	....	....	....	1	2
....	....	....	....	....	....	....	....	1	....	....	1	....	1	2	2	1	....	....
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	....	....	....
....	....	....	....	....	....	1	....	....	1	....	....	1	2	....	2	....	2	2
....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	1	1	....
....	....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	1
....	....	2	2	1	1	1	2	15	27	....	15	18	34	42	7	14	21	22
1	....	5	6	3	9	8	43	73	105	8	60	70	90	135	49	90	52	99
....	....	2	3	2	3	2	28	29	39	3	2	38	31	43	18	37	16	41
....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	1	1
....	....	....	....	....	....	....	....	1	1	....	1	....	....	....	....	....	2	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—*(Continued)*									
North Tonawanda	9,000	3	......	1	33.3	1	333	....	....
Lockport	16,088	29	......	3	10 3	1	32	....	....
Niagara Falls	16,000	24	......	6	25.0	0	......	....	....
Medina	4,500	7	......	3	42.8	0	......	....	....
Albion	4,536	8	......	0	......	0	......	....	....
Brockport	3,742	4	......	0	......	0	......	....	....
Rochester	180,000	145	10.0	25	17.2	17	117	....	1
Palmyra	4,173	2	......	1	50.0	0	......	....	....
Newark	4,600	4	......	0	......	0	......	....	....
Lyons	6,127	7	......	0	......	0	......	....	....
Clyde	3,000	4	......	1	25.0	1	250	....	....
Oswego	22,000	37	......	14	37.8	4	108	1	....
Fulton	4,214	7	......	1	......	......	......	....	....
Richland	3.637	1	......	0	......	0	......	....	....
Rest of district	231,000	260	13.4	35	12.7	13	55	...	....
Totals for the state	7,400,000	9,414	15.5	3,101	33.0	1,134	120	39	65
Average for five years past	....	9,036	16.3	3,021	33.4	1,391	155	61	74

REMARKS—There were 9,415 deaths during the month, which is 1,600 less than in May; June is next to November, the month of fewest deaths of the year. The death rate was 15 5, the average of the past five years being 16.3, the actual mortality being, however, above the average. Thirty-three per cent. of the deaths occurred under the age of five years, and 12.0 per cent of the deaths were from zymotic diseases, which is very low for June.

All zymotic diseases caused fewer deaths than the average for the month and fewer than in May, except diarrheal diseases, which latter usually shows a considerable increase from the spring months, varying with the early or late occurrence of periods of hot weather.

Smallpox caused one death in New York city, and there has occurred one death, in July, at Clyde, which place is now clear of the disease, having had two cases. Other reported localities

FOR JUNE—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	1	......	......	....	......	....	......	1	....	1	....	....
....	...	....	....	....	....	1	....	3	4	1	1	....	3	4	....	3	3	6
....	....	....	....	....	....	....	....	2	2	....	3	4	......	3	....	5	1	4
....	....	....	....	....	....	....	....	......	1	....	......	1	1	......	....	1	....	3
....	....	....	....	....	....	....	...	......	......	....	......	2	2	2	1	....	1	....
....	....	....	....	....	....	....	....	......	2	....	......	2	......	......	....	....	....	....
....	....	2	....	1	1	....	12	10	28	2	12	9	10	25	9	11	5	7
....	....	....	....	....	....	....	....	......	......	....	......	....	......	1	....	1	....	....
....	....	....	....	....	....	....	....	......	1	....	......	....	......	......	1	1	....	1
....	....	....	....	....	....	....	....	......	3	....	1	....	......	2	....	....	1	....
....	....	1	....	....	....	....	....	.....	1	....	......	....	1	1	....	....	....	....
....	....	....	....	....	2	1	....	3	1	....	2	....	10	5	2	3	3	4
....	...	....	....	....	....	....	....	......	......	....	......	....	......	2	1	2	2	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	1	....	....	....	....
1	....	....	3	....	3	4	2	25	22	2	19	14	31	43	17	25	17	3
26 29	1 8	44 72	120 128	40 26	71 86	243 292	477 620	1,058 877	1,070 1,023	90 77	874 778	705 645	807 778	1,057 1,006	397 332	637 588	358 375	1,265 1,165

are understood to be clear except at Rochester, where a case imported from Canada was detected July 9, and one secondary case has occurred.

Acute respiratory diseases have 850 fewer deaths than in May, but are in excess of the average, as also other local diseases, apparently due to the terminating grippe epidemic, deaths from which have been reported, and it probably increased the mortality of the month about 400, the disease, since its recurring prevalence in December, having caused 11,500 deaths.

The weather has been free from extremes and uniformly equal, with an average temperature of 68 degrees, and rainfall a little below the normal, and the month has been one of unusual salubrity.

MONTHLY BULLETIN OF THE NEW

Abstracts of reports of deaths and their causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes		
								Cerebro-spinal menigitis	Typhoid fever
MARITIME DISTRICT Totals	3,935,000	7,441	22.3	3,636	48.8	1,882	253	38	55
CITY OF NEW YORK Totals	3,654,594	6,973	22.4	3,433	49.3	1,753	250	37	52
BOROUGH OF MANHATTAN	2,007,241	3,644	21.3	1,756	48.2	769	211	25	28
BOROUGH OF THE BRONX	174,370	398	25.7	190	47.5	110	275	4	2
BOROUGH OF BROOKLYN	1,267,158	2,413	22.5	1,226	50 8	700	230	5	16
BOROUGH OF QUEENS	136,559	356	30.8	182	51.1	131	368	3	5
BOROUGH OF RICHMOND	69,266	162	27.5	79	47.5	43	262	....	1
Oyster Bay	15,000	......	......	......	......	......	......	....	....
Hempstead	24,000	39	......	18	46.0	12	306	1	....
North Hempstead	8,726	12	......	3	25.0	0	......	....	....
Southold	7,671	6	......	1	......	0	......	....	....
Sag Harbor	3,000	13	......	7	54.0	10	770	....	....
Huntington	8,253	13	......	3	23.0	2	154	....	....
Brookhaven	13,500	12	......	2	......	1	......	....	....
YONKERS	45,000	75	......	47	62.7	31	413	....	1
Greenburgh	12,000	19	......	7	36.8	5	255	....	....
MOUNT VERNON	15,513	37	......	15	40.0	7	189	....	....
Port Chester	7,547	24	......	17	71.0	17	710	....	....
Sing Sing	9,500	11	......	1	9.0	2	182	....	....
NEW ROCHELLE	10,000	30	......	13	43.3	7	233	....	....
Peekskill	10,000	11	......	5	45.4	3	273	....	....
White Plains	4,042	11	......	3	27.3	3	273	....	....
Rest of district	90,000	155	20.3	55	35.5	29	187	....	2
HUDSON VALLEY DISTRICT Totals	700,000	1,048	17.8	297	27.5	237	224	2	13
ALBANY	100,000	162	19.0	48	29.6	36	225	....	3
COHOES	25,000	40	......	17	42.5	11	275	....	1
TROY	65,000	152	27.5	56	36.8	48	315	....	1
WATERVLIET	14 000	23	......	12	52.2	7	300	....	....
Green Island	4,500	7	......	5	72.8	3	428	1	....
Lansingburgh	12,000	21	......	3	14.3	5	238	....	1
Hoosick Falls	7,014	2	......	0	......	......	......	....	....
RENSSELAER	8,000	12	......	3	25.0	0	......	....	....
Coxsackie	3,824	10	......	4	40.0	3	300	....	....
Catskill	5,000	3	......	1	......	......	......	....	....
HUDSON	10,000	14	......	3	21.4	0	......	....	....
KINGSTON	25,000	41	......	14	34.1	13	317	....	....
Ellenville	3,000	4	......	1	25.0	1	250	....	....
Marbletown	3,689	7	......	0	......	0	......	....	....
Rosendale	6,125	8	......	3	37.5	0	......	....	....
Esopus	5,035	4	......	1	25.0	1	250	....	....
Saugerties	4,237	9	......	4	44.4	2	222	....	....
POUGHKEEPSIE	25,000	50	......	16	32 0	11	220	....	....
Fishkill	12,000	20	......	5	25.0	6	300	....	1
Wappinger Falls	3,718	5	......	2	40.0	3	600	....	....
NEWBURGH	36,000	39	......	13	33.3	12	308	....	....
Port Jervis	9,327	17	......	7	35.2	7	352	....	1
MIDDLETOWN	12,000	23	......	4	17.4	5	217	....	....
Warwick	6,000	9	......	2	22 2	2	222	1	....
Goshen	4,646	6	......	3	50.0	2	333	....	....

YORK STATE BOARD OF HEALTH

districts, cities villages and towns during July, 1900

in *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
12	....	28	68	15	60	147	1459	523	710	50	1110	489	373	482	202	556	95	966
12	....	28	66	15	55	140	1348	504	673	47	1076	468	330	425	186	522	79	910
6	....	15	18	7	30	66	574	324	347	28	566	265	153	221	106	310	44	511
3	....	2	9	1	1	16	72	12	76	2	49	17	18	21	13	22	5	53
2	....	5	32	6	20	43	571	134	217	17	381	160	137	143	56	155	23	290
1	....	6	7	....	3	6	100	23	21	....	52	13	18	30	8	24	4	32
....	....	....	....	1	1	9	31	11	12	....	28	13	4	10	3	11	3	24
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	1	10	......	2	....	1	3	2	5	3	2	1	8
....	....	....	....	....	....	....	....	1	2	1	1	....	2	1	....	1	1	2
....	....	....	....	....	....	....	....	......	......	....	1	....	1	......	1	1	1	1
....	....	....	....	....	....	....	10	......	......	....	......	....	1	1	....	....	....	1
....	....	....	....	....	1	....	1	......	2	....	2	....	3	1	....	2	1	....
....	....	....	....	....	....	....	1	......	1	....	......	2	2	3	....	1	2	....
....	....	....	....	....	....	....	30	4	5	....	4	2	5	8	2	3	1	10
....	....	....	....	....	....	....	5	......	......	....	2	2	1	1	....	5	....	3
....	....	....	....	....	....	1	6	6	2	....	4	1	5	2	2	2	2	4
....	....	....	....	....	....	3	14	1	1	....	3	....	......	2	....	....	....	....
....	....	....	....	....	1	....	1	......	1	....	2	1	1	2	....	1	....	1
....	....	....	....	....	....	1	6	1	......	....	2	1	......	9	1	5	1	3
....	....	....	....	....	....	1	2	......	1	....	......	....	3	......	1	1	....	2
....	....	....	....	....	....	....	3	1	3	1	......	1	......	1	....	....	....	1
....	....	....	2	....	3	....	22	8	17	1	12	8	17	21	6	10	6	20
2	....	2	1	2	16	18	181	55	118	3	83	51	101	135	45	63	68	89
....	....	....	....	....	....	6	27	12	23	1	16	13	6	17	7	8	11	12
....	....	....	....	....	....	....	10	2	3	....	3	1	3	6	2	3	1	5
....	....	....	1	....	2	1	43	8	13	....	11	7	14	18	6	4	7	16
....	....	....	....	....	....	....	7	2	1	....	3	....	3	3	....	1	1	2
....	....	....	....	....	....	....	2	......	1	....	......	1	1	1	....	....	....	....
....	....	....	....	....	1	1	2	1	3	....	3	1	1	3	....	2	2	....
....	....	....	....	....	....	....	....	1	......	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	2	2	....	......	....	1	1	3	1	....	2
....	....	....	....	....	....	....	3	......	......	....	2	....	1	1	2	....	....	1
....	....	....	....	....	....	....	....	1	......	....	......	....	......	1	1	....	....	....
....	....	....	....	....	....	....	....	......	4	....	......	....	3	2	....	....	2	3
1	....	....	....	....	1	2	9	1	2	....	6	1	3	2	1	2	3	7
....	....	....	....	....	....	....	1	......	......	....	......	....	1	......	....	....	2	....
....	....	....	....	....	....	....	....	2	......	1	2	....	2	......	....	....	....	....
....	....	....	....	....	....	....	....	1	......	....	1	....	1	2	....	....	....	3
....	....	....	....	1	....	....	....	1	......	....	2	....	......	......	....	....	....	....
....	....	....	....	....	....	....	2	......	3	....	2	....	......	......	1	1	....	....
1	....	....	....	....	1	....	9	2	6	....	5	....	3	4	1	4	7	7
....	....	....	....	....	....	....	5	3	3	....	1	....	2	......	1	2	....	2
....	....	....	....	....	1	....	2	......	1	....	......	....	......	......	....	....	1	....
....	....	....	....	....	1	....	11	1	9	....	1	2	3	3	1	1	1	5
....	....	....	....	....	1	....	5	......	1	....	3	....	2	......	....	1	3	....
....	....	....	....	....	....	....	5	......	3	....	2	3	2	4	2	....	1	1
....	....	....	....	....	1	....	....	......	2	....	1	....	1	1	....	2	....	....
....	....	....	....	....	....	....	2	2	......	....	......	....	1	......	....	1	....	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	7	......	3	42.8	4	570	....	....
Haverstraw	7,714	11	......	7	63.7	3	273	....	....
Nyack	5,603	7	......	1	14.3	2	285	....	....
Ramapo	6,600	10	......	4	40.0	7	700	....	....
Rest of district	275,000	325	14.0	56	17.2	43	163	....	5
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	426	13.0	81	19.0	64	150	4	6
WATERTOWN	17,000	30	......	9	30.0	6	200	....	3
Ellisburgh	4,223	4	......	0	......	0	......	....	....
Cape Vincent	3,000	2	......	0	......	0	......	....	....
Clayton	4,250	6	......	2	33.3	0	......	....	....
OGDENSBURG	12,000	18	......	3	16.5	2	111	....	....
Gouverneur	6,000	6	......	1	16.7	1	167	....	....
Potsdam	4,000	8	......	1	12.5	0	......	....	...
Canton	6,013	4	......	0	......	0	......	....	....
Malone	5,000	5	......	3	......	......	......	....	....
Plattsburg	8,400	12	......	5	41.6	6	500	....	....
Glens Falls	12,500	27	......	14	51.8	15	555	1	1
Whitehall	4,500	4	......	1	25.0	1	250	....	....
Fort Edward	4,500	11	......	6	54.5	3	273	....	....
Kingsbury	5,112	7	......	3	42.8	3	428	....	....
Granville	5,281	1	......	0	......	......	......	....	....
Greenwich	4,500	6	......	0	......	0	......	....	....
Lowville	4,000	4	......	0	......	0	......	....	....
Rest of district	280,000	271	11.6	33	12.2	27	100	3	2
MOHAWK VALLEY DISTRICT									
Totals	395,000	505	15.1	131	26.0	97	192	3	4
SCHENECTADY	28,791	54	......	22	41 0	15	278	....	....
COBLESKILL	3,436	1	......	0	......	0	....	....	....
AMSTERDAM	20,000	23	......	5	21.7	6	261	....	1
Fort Plain	3,000	......	......	......	......	......	......	....	....
JOHNSTOWN	7,768	7	......	0	......	0	......	....	....
GLOVERSVILLE	15,000	13	......	5	38.4	1	77	....	....
LITTLE FALLS	12,000	12	......	1	8.3	0	......	....	....
Herkimer	5,150	4	......	0	......	0	......	....	....
Ilion	4,057	4	......	0	......	1	250	...	....
UTICA	55,000	103	22.0	54	53.7	45	437	....	1
Whitestown	5,225	8	......	3	37.5	2	250	....	....
ROME	14,000	12	......	2	16.7	3	250	2	....
Boonville	3,512	2	......	0	......	0	......	....	....
Camden	3,675	6	......	1	16.7	0	......	....	....
Waterford	5,522	7	......	2	28.5	3	428	....	....
Mechanicville	3,000	6	......	1	16.7	0	......	....	....
Ballston Spa	3,527	2	......	1	......	0	......	....	....
Saratoga Springs	12,500	21	......	4	19.0	2	95	....	....
Rest of district	192,000	220	13.7	30	13.5	19	87	1	2
SOUTHERN TIER DISTRICT									
Totals	425,000	391	11.0	76	19.5	52	133	1	5
BINGHAMTON	45,000	72	......	20	27.7	16	222	1	....
Owego	6,000	8	......	0	......	0	......	....	1
Candor	3,525	2	......	0	......	0	......	...	....
Waverly	4,123	4	......	0	......	0	......	....	...
ELMIRA	40,000	34	......	6	17.6	4	118	....	1

FOR JULY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	2	2	......	......	....	......	....	......	1	....	1	1	....
....	....	....	....	....	....	....	3	......	......	....	......	....	......	4	1	....	....	3
....	....	....	....	....	....	....	2	......	......	....	......	2	1	1	1	....	....	....
....	....	....	....	....	....	2	5	......	1	....	......	1	1	......	....	....	....	....
....	....	2	....	1	7	4	24	13	37	1	19	19	44	60	15	29	25	20
1	....	3	5	1	2	5	37	25	42	5	32	21	50	62	23	26	34	42
....	....	....	....	1	....	....	2	3	2	....	1	1	2	2	4	3	....	6
....	....	....	....	....	....	....	....	......	......	....	2	....	1	1	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	....	1	....	....
....	....	....	....	....	....	....	....	......	1	....	......	....	......	2	....	....	....	3
....	....	....	....	....	....	....	2	1	......	....	3	2	3	2	1	....	3	1
....	....	....	1	....	....	....	....	......	2	....	1	....	......	1	....	1	....	....
....	....	....	....	....	....	....	....	......	2	....	1	....	3	......	....	....	2	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	2	....	....	1	1
....	....	....	....	....	....	....	....	1	......	....	......	....	1	......	....	....	....	3
....	....	....	....	....	....	....	6	......	3	....	1	....	1	1	....	....	....	....
....	....	1	....	....	1	....	11	2	1	....	1	1	......	4	....	1	1	1
....	....	....	....	....	....	....	1	......	2	....	......	....	......	......	....	....	....	1
....	....	1	....	....	....	....	2	2	......	1	......	....	2	......	....	2	....	1
....	....	....	....	....	1	....	2	......	......	....	......	....	......	2	1	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	1	....	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	2	......	......	1	....	1	1
....	....	....	....	....	....	....	....	......	......	1	2	....	......	......	....	....	....	1
1	....	1	4	....	....	5	11	15	29	3	20	15	36	44	16	18	25	23
....	....	....	7	1	7	8	67	22	40	6	46	19	56	64	34	46	33	42
....	....	....	....	....	1	....	14	1	5	....	2	1	2	6	2	9	3	8
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	1	....
....	....	....	....	....	....	....	5	1	......	1	1	1	4	1	2	3	1	2
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	1	....	1	1	2	1	....	....
....	....	....	....	....	....	....	1	2	1	1	1	1	3	......	....	1	....	2
....	....	....	....	....	....	....	....	......	2	....	1	1	1	1	1	1	2	2
....	....	....	....	....	....	....	....	......	......	....	......	....	......	3	....	1	....	....
....	....	....	....	....	....	....	1	......	......	....	......	1	......	......	1	....	1	....
....	....	....	6	....	5	4	29	8	6	1	14	2	8	9	5	5	....	....
....	....	....	....	1	....	....	1	......	......	....	......	1	2	1	....	2	....	....
....	....	....	....	....	....	....	1	......	1	....	1	1	......	2	3	1	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	2	......	....	....	....	....
....	....	....	....	....	....	....	....	1	1	1	......	....	1	1	....	....	....	1
....	....	....	....	....	....	....	3	......	......	1	......	....	......	......	1	1	1	....
....	....	....	....	....	....	....	....	......	......	....	1	....	1	1	....	....	1	2
....	....	....	....	....	....	....	....	......	......	....	1	....	......	......	....	....	1	....
....	....	....	....	....	....	....	2	1	1	....	1	4	3	1	....	1	3	4
....	....	....	1	....	1	4	10	8	22	1	22	6	28	37	17	20	19	21
1	....	2	5	....	4	7	27	17	37	2	37	36	40	41	29	30	30	40
....	....	....	2	....	....	1	12	3	3	....	6	7	3	11	3	5	4	11
....	....	....	....	....	....	....	....	1	......	....	......	1	1	......	....	....	3	1
....	....	....	....	....	....	....	....	......	1	....	......	....	......	1	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	1	....	1	1	....	....	....	....
....	....	....	....	....	....	....	3	4	3	1	3	6	4	1	3	4	....	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes		
								Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	4	......	1	25.0	1	......	....	....
HORNELLSVILLE	12,000	11	......	0	......	1	90	....	....
Bath	3,261	5	......	0	......	0	......	....	....
CORNING	10,025	14	......	4	28.5	5	357	....	1
Wellsville	5,033	4	......	0	......	0	......	....	....
OLEAN	10,000	6	......	1	16.7	2	333	....	....
Salamanca	3,700	5	......	0	......	1	200	....	....
DUNKIRK	14,000	8	......	3	37.5	1	125	....	....
JAMESTOWN	18,627	22	......	8	36.4	4	182	....	....
Westfield	3,000	3	......	0	......	0	......	....	....
Fredonia	3,400	4	......	1	25.0	0	......	....	....
Rest of district	250,000	185	8.7	27	14.6	16	90	....	2
EAST CENTRAL DISTRICT Totals	415,000	465	13.1	94	19 5	68	143	2	4
SYRACUSE	120,000	156	15.7	42	27.0	29	186	....	1
Baldwinsville	3,040	2	......	0	......	0	......	....	....
De Witt	5,182	3	......	1	33.3	2	666	....	....
Cortland	8,600	10	......	0	......	0	......	....	....
Homer	3,000	2	......	0	......	1	500	....	....
Oneida	6,100	5	......	1	20.0	1	200	....	....
Hamilton	4,110	4	......	0	......	0	......	....	....
Cazenovia	3,803	4	......	1	......	1	......	....	....
Brookfield	3,235	8	......	2	25.0	2	250	....	....
Norwich	6,000	3	......	1	33.3	1	333	....	....
Oneonta	8,000	11	......	0	......	1	91	....	....
Worcester	2,670	4	......	0	......	1	250	....	....
Cooperstown	3,000	3	......	0	......	0	......	....	....
Walton	4,811	4	......	4	......	2	500	1	....
Delhi	3,000	6	......	1	16.7	0	......	....	....
Liberty	3,500	9	......	0	......	0	......	....	....
Rest of district	230,000	231	12.1	41	17.4	27	117	1	3
WEST CENTRAL DISTRICT Totals	325,000	306	11.1	39	12.7	26	85	....	4
AUBURN	35,000	46	......	11	24 0	5	108	....	2
ITHACA	13,460	13	......	2	15 3	0	......	....	....
Hector	4,832	7	......	2	28.5	1	128	....	....
Waterloo	4,350	7	......	0	......	0	......	....	....
Seneca Falls	6,500	6	......	1	16.7	0	......	....	....
GENEVA	11,800	15	......	5	33.3	5	333	....	....
Canandaigua	5,868	2	......	0	......	0	......	....	....
Manchester	4,181	3	......	0	......	0	......	....	....
Phelps	5,150	5	......	0	......	0	......	....	....
Penn Yan	4,800	6	......	1	16.7	2	333	....	1
Batavia	7,221	12	......	0	......	3	250	....	1
Dansville	3,758	5	......	0	......	0	......	....	....
Le Roy	3,000	2	......	0	......	0	......	....	....
Warsaw	4,700	3	......	0	......	0	......	....	....
Rest of district	212,000	174	9.7	17	9.6	10	58	....	....
LAKE ONTARIO AND WESTERN DISTRICT Totals	890,000	1,059	14.0	380	36.0	306	290	3	10
BUFFALO	370,000	458	15.6	201	44.0	178	389	3	5
TONAWANDA	9,000	6	......	4	66.6	2	333	....	....
Amherst	4,000	1	......	0	......	......	......	....	....

FOR JULY—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
			1								1	1						1
							1		2		2	1	1	1	1	1	1	
									2					2			1	
						3	1		1		2		2	2	1	1		
									1				1	1	1			
							2				2	1		1				
			1						1				2		1			
		1										1	1				1	4
					3		1	2	3		1	1	1	4		3		3
												1	2					
													2				1	1
1		1	1		1	3	7	7	19	1	19	16	19	16	19	16	19	18
		1	4		5	4	48	28	36	3	48	25	58	58	31	27	31	52
			2		1		25	10	10	2	17	10	16	19	7	13	7	16
									1						1			
							2				1							
									1		1	1		4	1	1		1
							1											1
							1						1		2			1
														1	1		1	1
							1						2					1
							2		1					2	1	1		1
							1							1				1
						1					2		2	2	1	1	2	
							1							1	1			1
								1				1						1
							1							1				1
								1			2	1			1			1
									2		3		3					1
		1	2		4	3	13	16	21	1	22	12	34	27	15	11	21	24
		2	1	1	3	3	12	15	24		25	16	46	50	23	23	25	33
							3	9	3		2	4	4	7	2	1	2	7
											1		2	2		5		3
							1				1		1	1	1		1	1
								1	1					1	2	1	1	
									1		1		2				1	1
		1			1		3	1			1		1	4			1	2
								1			1							
												1		1	1			
									1			1	2	1				
							1		1		1			1			1	
						2					2		2	1		2	2	
											1	1	1		2			
																		2
												1	1				1	
		1	1	1	2	1	4	3	17		14	8	30	31	15	14	15	17
1	1	5	1	2	16	16	251	38	95	6	65	70	74	124	44	86	61	90
		3	1	1	9	6	150	10	32	5	22	30	27	42	24	31	28	29
							2		1							1		2
																	1	

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)									
NORTH TONAWANDA	9,000	17	......	12	70.0	8	470	....	....
LOCKPORT	16,088	15	......	1	6.6	1	66	....	....
NIAGARA FALLS	16,000	19	......	9	47.3	5	263	....	1
Medina	4,500	8	......	3	37.5	2	250	....	....
Albion	4,536	8	......	2	25.0	1	125	....	....
Brockport	3,742	3	......	0	......	0	......	....	....
ROCHESTER	180,000	201	13.2	66	33.0	47	235	....	1
Palmyra	4,173	4	......	2	50.0	1	250	....	....
Newark	4,600	6	......	2	......	0	......	....	....
Lyons	6,127	7	......	1	14.2	0	......	....	....
Clyde	3,000	2	......	0	......	1	500	....	....
OSWEGO	22,000	33	......	11	33.3	4	160	....	1
Fulton	4,214	8	......	3	37.5	2	250	....	....
Richland	3,637	4	......	0	......	......	......	....	....
Rest of district	231,000	259	13.0	63	24.0	54	208	....	2
Totals for the state	7,110,000	11,641	19.5	4,728	40.6	2,732	235	53	101
Average for five years past	....	11,659	22.0	5,377	46.0	3,273	280	58	96

REMARKS—July, usually the month of largest mortality in the year by reason of the diarrheal deaths, has been exceeded this year by that of March (the grippe epidemic), when 13,033 deaths occurred and April, with 12,486, the deaths of this month being 11,614 which is below the average (11,900) of the past 10 years. In 1892 there were 13,552 deaths in July; last July, 11,291. The death rate is 19.5 against an average of 22.0 for July. There were 40.6 per cent of deaths under five years, the average being 46.0 per cent.

Diarrheal deaths have increased from 477 in June to 2,075. The average for the past 10 years for July is 2,863, being 24 per cent of the total mortality, against 18 per cent this month. The largest relative mortality from this cause was in the Lake Ontario and Western district, 23.6 per cent; in the Maritime, 19.6; while in the West Central and Southern Tier districts only 5.4 per cent of the deaths were diarrheal. In the three largest cities 22 per cent of the deaths

FOR JULY—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	8	......	......	....	......	....	1	3	....	3	....	2
....	....	....	....	....	....	1	....	1	2	....	1	2	4	1	....	....	....	3
....	....	....	....	....	....	....	4	......	......	....	1	....	......	2	1	2	1	7
....	....	....	....	....	....	....	2	1	1	....	......	....	......	1	1	1	....	1
....	....	....	....	....	....	....	1	1	......	....	1	....	2	......	....	2	....	1
....	....	....	....	....	....	....	....	......	2	....	......	....	1	......	....	....	....	....
....	....	1	....	....	1	2	42	10	23	....	10	16	6	33	9	20	5	22
....	....	....	....	....	....	....	1	......	......	....	......	....	1	1	....	....	....	1
....	....	....	....	....	....	....	....	......	3	....	......	1	......	1	....	....	....	1
....	....	....	....	....	....	....	....	......	1	....	1	....	1	2	....	....	....	2
....	1	....	....	....	....	....	....	......	1	....	......	....	......	......	....	....	....	....
....	....	....	....	1	....	2	....	4	5	....	6	1	6	1	1	2	2	1
....	....	....	....	....	....	....	2	1	1	....	......	1	1	......	2	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	1	....	2	....
1	....	1	....	....	6	5	39	10	23	1	23	19	23	37	5	24	22	18
17	1	43	92	22	113	208	2082	726	1,102	75	1,446	727	798	1,016	431	857	377	1,354
34	1	52	85	16	121	244	2566	713	1,044	77	1,237	646	772	1,071	354	671	395	1,406

were from acute diarrheal diseases, 40 deaths per 10,000 population; of 1,820 deaths in rural towns 8 per cent were diarrheal, 8 deaths per 100,000 population. The increase from June in both localities is about the same, though commonly much the largest in the cities in July, the rural mortality from diarrhea falling on August. Other diseases of the digestive system have a much increased mortality.

Whooping cough increased from 71 deaths in June to 113, the increase being generally distributed in all parts of the state.

Typhoid fever has moderately increased; scarlet fever, measles, erysipelas and malarial diseases have diminished. The state is free from smallpox.

There were 856 deaths from accident and violence, five occurring from lightning stroke, all in rural localities; 152 deaths were caused by sunstroke in New York city, and 14 in Hudson valley towns on the 17th and 18th of the month.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases.	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT									
Totals	3,935,000	6,288	18.8	2,800	44.4	1,330	211	29	69
CITY OF NEW YORK									
Totals	3,654,594	5,811	18.7	2,584	44 5	1,188	295	29	67
BOROUGH OF MANHATTAN	2,007,241	3,117	18.9	1,362	43.7	578	185	15	31
BOROUGH OF THE BRONX	174,370	340	23.0	121	35.6	67	200	2	6
BOROUGH OF BROOKLYN	1,267,158	1,934	18.1	912	47 2	440	227	9	26
BOROUGH OF QUEENS	136,559	270	23.3	118	43.7	67	248	3	3
BOROUGH OF RICHMOND	69,266	150	23.7	71	47 3	36	240	....	1
Oyster Bay	15,000	26	......	8	......	6	......	....	....
Hempstead	24,000	53	......	29	......	27	......	....	....
North Hempstead	8,726	11	......	6	......	5	......	....	....
Southold	7.671	12	......	4	33.3	3	250	....	....
Sag Harbor	3,000	9	......	8	......	4	......	....	....
Huntington	8,253	9	......	4	......	2	......	....	....
Brookhaven	13,500	23	......	6	......	2	......	....	....
YONKERS	45,000	72	......	44	61.0	18	250	....	....
Greenburgh	12,000	43	......	22	......	14	......	....	....
MOUNT VERNON	15,513	22	......	4	......	4	......	....	....
Port Chester	7,547	....	......	......	......	......	......	....	....
Sing Sing	9,500	8	......	4	......	2	......	....	....
NEW ROCHELLE	10,000	22	......	10	......	6	......	....	....
Peekskill	10,000	9	......	6	......	3	......	....	....
White Plains	4,042	8	......	0	......	1	......	....	....
Rest of district	90,000	150	20.0	61	40.0	45	300	....	2
HUDSON VALLEY DISTRICT									
Totals	700,000	1,070	18.0	336	31.6	312	292	4	29
ALBANY	100,000	116	14.0	22	19.0	22	190	....	4
COHOES	25,000	31	......	17	55.0	12	400	....	2
TROY	65,000	127	23.0	45	35.4	42	330	....	6
WATERVLIET	14,000	26	......	5	19.2	6	230	....	2
Green Island	4,500	6	......	3	50.0	3	500	1	1
Lansingburg	12,000	15	......	4	26.6	5	333	....	1
Hoosick Falls	7,014	8	......	1	12.5	1	125	....	....
RENSSELAER	8,000	7	......	3	42.5	0	......	....	....
Coxsackie	3,824	11	......	4	36.3	4	363	....	....
Catskill	5,000	8	......	2	25.0	1	125	1	....
HUDSON	10,000	14	......	4	28.5	2	143	....	....
KINGSTON	25,000	45	......	10	22.2	10	222	....	....
Ellenville	3,000	6	......	1	16.7	1	167	....	....
Marbletown	3.689	12	......	3	25.0	2	167	....	....
Rosendale	6,125	14	......	10	71.3	12	857	....	1
Esopus	5,035	9	......	3	37.5	4	375	....	....
Saugerties	4,237	6	......	2	33.3	2	333	....	....
POUGHKEEPSIE	25,000	37	......	11	30.0	14	378	....	2
Fishkill	12,000	17	......	3	18.5	5	312	....	1
Wappingers Falls	3,718	8	......	3	37.5	4	500	....	....
NEWBURGH	36,000	53	......	23	45.3	16	300	....	....
Port Jervis	9,327	19	......	5	30.0	6	353	....	....
MIDDLETOWN	12,000	16	......	4	25.0	6	375	1	....
Warwick	6,000	10	......	5	50.0	5	500	....	....
Goshen	4,646	10	......	3	30.0	1	100	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during August, 1900

In *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
27	2	14	23	8	49	142	967	427	658	60	848	389	355	413	204	515	90	999
26	2	14	23	6	47	129	845	409	619	60	813	364	322	353	193	479	82	929
8	....	7	14	4	24	52	423	260	325	37	431	214	177	164	110	263	32	526
4	2	4	2	....	3	6	38	12	74	2	35	16	13	17	15	26	5	48
5	....	3	6	2	15	56	318	117	181	18	282	117	112	148	60	131	38	290
8	....	....	1	....	2	12	38	12	28	2	36	9	13	19	2	37	4	41
1	....	....	....	....	3	3	28	8	11	1	29	8	7	5	6	12	3	24
....	....	....	....	....	....	....	6	1	2	....	2	1	3	3	2	1	3	2
....	....	....	....	....	....	1	26	1	4	....	7	2	3	2	....	....	1	6
....	....	....	....	....	....	1	4	......	......	....	......	....	......	......	....	3	....	3
....	....	....	....	1	1	....	1	1	2	....	1	....	......	1	....	2	....	2
....	....	....	....	....	....	....	4	......	......	....	......	....	......	1	....	....	....	4
....	....	....	....	....	....	....	2	......	......	....	1	2	......	1	....	1	....	2
....	....	....	....	....	....	1	1	......	4	....	2	3	1	3	1	3	....	4
....	....	....	....	....	....	....	18	5	5	....	4	6	2	10	1	7	....	14
....	....	....	....	....	....	1	13	1	1	....	2	....	4	7	....	3	....	11
....	....	....	....	1	....	1	2	......	1	....	1	1	3	4	3	2	1	2
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	2	......	......	....	......	1	2	......	....	1	....	2
....	....	....	....	....	....	....	6	......	2	....	4	1	2	3	....	1	1	2
....	....	....	....	....	1	1	1	1	1	....	......	....	......	3	....	....	....	1
1	....	....	....	....	....	....	....	1	......	....	......	1	1	1	....	2	....	1
....	....	....	....	....	....	7	36	7	17	....	11	7	12	20	4	10	2	15
4	....	1	4	....	7	24	239	38	101	3	84	68	86	131	38	51	61	97
....	....	....	....	....	....	2	16	4	17	....	9	14	13	17	7	....	11	2
....	....	....	....	....	....	1	9	1	4	1	5	....	......	3	....	1	1	3
....	....	....	....	....	2	4	30	4	16	....	11	6	6	9	4	4	7	18
....	....	....	1	....	....	....	3	5	4	....	2	2	2	1	1	....	2	1
....	....	....	1	....	....	....	....	......	......	....	......	....	1	......	....	1	....	1
....	....	....	....	....	....	1	3	2	......	....	......	1	3	3	....	....	1	....
....	....	....	....	....	....	....	1	......	2	....	1	....	......	2	....	....	1	1
....	....	....	....	....	....	....	....	1	1	....	1	....	......	3	....	....	....	1
....	....	....	....	....	....	....	4	1	1	....	1	1	......	2	1	....	....	....
....	....	....	....	....	....	....	....	......	1	....	1	....	1	......	1	3	....	....
....	....	....	....	....	....	1	1	......	1	....	2	1	1	......	....	2	1	4
1	....	1	1	....	....	3	4	2	8	....	2	1	5	4	2	2	1	8
1	....	....	....	....	....	....	....	......	......	....	1	1	1	......	....	....	1	1
....	....	....	....	....	....	....	2	......	1	....	1	....	1	4	2	....	1	....
....	....	....	....	....	1	....	10	......	......	....	......	....	......	1	....	....	....	1
....	....	....	....	....	....	....	4	......	......	....	2	....	1	......	1	....	....	1
....	....	....	....	....	....	....	2	......	......	....	......	1	......	1	1	....	1	....
....	....	....	....	....	....	1	11	......	3	1	1	2	1	2	2	2	4	5
1	....	....	....	....	....	1	2	......	2	....	1	2	1	1	1	1	1	2
....	....	....	....	....	....	....	4	1	......	....	......	....	2	......	....	....	....	1
....	....	....	....	....	....	1	15	......	5	....	4	3	6	7	1	6	....	5
....	....	....	....	....	....	1	5	1	......	....	1	....	1	5	1	1	3	....
....	....	....	....	....	1	2	2	......	3	....	1	1	2	1	....	1	....	1
....	....	....	....	....	1	....	4	......	......	....	......	1	2	......	....	1	....	1
....	....	....	....	....	....	....	1	......	1	....	2	1	2	1	....	1	1	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	8	......	7	......	5	625	1	1
Haverstraw	7,714	14	......	6	42.8	4	285	....	....
Nyack	5,603	4	......	2	50.0	2	500	....	....
Ramapo	6,600	9	......	4	44.4	3	333	....	....
Rest of district	275,000	404	17.2	121	30.5	110	354	....	8
ADIRONDACK AND NORTH'N DISTRICT Totals	390,000	474	15.0	134	28.5	128	270	2	11
WATERTOWN	17,000	44	......	20	45.5	12	273	....	....
Ellisburgh	4,223	......	......	......	......	......	......	....	....
Cape Vincent	3,000	1	......	1	......	1	......	....	....
Clayton	4,250	9	......	3	33.3	3	333	....	....
OGDENSBURG	12,000	20	......	8	40.0	7	350	....	....
Gouverneur	6,000	11	......	2	18.2	1	90	....	1
Potsdam	4,000	......	......	......	......	......	......	....	....
Canton	6,013	6	......	0	......	0	......	....	....
Malone	5,000	5	......	3	60 0	2	400	....	....
Plattsburg	8,400	27	......	12	44.4	17	630	....	....
Glens Falls	12,500	14	......	5	35.7	6	428	1	1
Whitehall	4,500	7	......	2	28.5	3	428	....	....
Fort Edward	4,500	9	......	0	......	1	111	....	1
Kingsbury	5,112	7	......	2	28 5	0	......	....	....
Granville	5,281	6	......	4	60.6	4	666	....	....
Greenwich	4,500	3	......	0	......	1	333	....	....
Lowville	4,000	3	......	0	......	0	......	....	....
Rest of district	280,000	302	12.8	82	26.6	70	227	1	8
MOHAWK VALLEY DISTRICT Totals	395,000	500	16 5	172	30.7	164	293	3	9
SCHENECTADY	28,791	52	......	24	46.1	18	346	....	....
Cobleskill	3,436	4	......	2	50.0	1	250	....	....
AMSTERDAM	20,000	39	......	7	18.0	12	308	....	2
Fort Plain	3,000	3	......	0	......	0	......	....	....
JOHNSTOWN	7,768	12	......	7	67.0	4	250	1	....
GLOVERSVILLE	15,000	19	......	6	31.5	4	120	1	1
LITTLE FALLS	12,000	21	......	5	25.0	5	250	1	1
Herkimer	5,150	11	......	1	9.0	4	364	....	2
Ilion	4,057	6	......	0	......	3	500	....	1
UTICA	55,000	120	25.8	43	35.1	41	341	....	2
Whitestown	5,225	9	......	4	44.4	5	555	....	....
ROME	14,000	25	......	9	36.0	10	400	....	....
Boonville	3,512	11	......	3	27.3	3	273	....	....
Camden	3,675	4	......	1	25.0	0	......	....	....
Waterford	5,522	7	......	7	......	5	714	....	....
Mechanicville	3,000	10	......	4	40.0	3	300	....	....
Ballston Spa	3,527	5	......	2	40 0	1	200	....	....
Saratoga Springs	12,500	31	.....	7	22.8	7	230	....	....
Rest of district	192,000	197	12.6	49	25.0	48	240	....	1
SOUTHERN TIER DISTRICT Totals	425,000	491	14.5	128	26.3	111	221	4	12
BINGHAMTON	45,000	48	......	10	20.8	9	187	....	....
Owego	6,000	4	......	2	50 0	1	250	....	....
Candor	3,525	4	......	1	25.0	1	250	....	....
Waverly	4,123	8	......	1	12.5	1	125	...	....
ELMIRA	40,000	49	......	16	34.2	13	285	1	2

FOR AUGUST—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	3	....	....	....	1	....	....	....	....	1	....	1
....	....	....	....	....	....	1	3	1	2	....	....	....	1	1	....	1	2	2
....	....	....	....	....	....	....	2	....	....	....	....	....	....	1	....	1	....	....
....	....	....	....	....	....	1	2	....	1	....	2	1	1	1	....	....	....	....
1	....	....	1	....	2	4	96	15	28	1	32	20	32	61	13	22	22	37
1	....	....	4	....	1	5	101	18	48	2	42	38	35	41	21	27	31	43
....	....	....	....	....	....	....	12	2	3	....	6	1	3	2	5	2	3	5
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	3	....	2	....	....	1	....	2	....	....	1	....
....	....	....	....	....	....	....	7	1	2	....	1	1	....	2	1	3	....	2
....	....	....	....	....	....	....	....	2	1	....	1	....	3	1	....	1	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	2	....	2	....	....	1	1	....
....	....	....	....	....	....	....	2	....	1	....	....	1	....	....	....	....	....	1
....	....	....	....	....	....	....	17	1	1	....	1	1	....	3	1	....	1	1
....	....	....	....	....	....	....	4	....	....	....	2	1	1	....	....	1	1	2
....	....	....	....	....	....	1	2	....	....	....	....	2	....	....	1	1	....	....
....	....	....	....	....	....	....	....	....	3	....	1	....	....	....	1	1	2	....
....	....	....	....	....	....	....	....	....	1	....	1	1	2	....	....	1	....	1
....	....	....	....	....	....	....	4	....	....	....	....	....	....	1	....	1	....	....
....	....	....	....	....	....	....	1	....	....	....	1	....	1	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	....	1
1	....	....	4	....	1	4	51	12	34	2	25	28	23	30	12	15	22	29
1	....	1	11	1	9	10	119	17	44	3	55	27	38	59	25	41	26	61
....	....	....	....	....	3	....	15	1	1	1	6	2	3	4	....	4	3	9
....	....	....	....	....	....	1	....	....	1	....	1	....	....	....	1	....	....	....
....	....	....	....	....	....	....	10	1	3	....	....	....	3	5	2	5	....	8
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	3	....
....	....	....	....	....	....	....	3	....	....	....	1	1	....	4	....	....	1	1
....	....	....	....	....	....	....	2	1	2	....	1	1	2	....	1	4	....	3
....	....	....	....	....	....	1	2	....	2	....	2	....	....	2	1	4	3	1
1	....	....	....	....	....	2	....	1	2	....	....	....	1	1	....	....	2	....
....	....	....	....	....	....	....	2	....	....	....	1	1	....	....	....	....	....	1
....	....	1	9	....	3	....	26	11	6	1	18	4	8	13	8	3	3	4
....	....	....	....	....	....	3	2	....	1	....	....	....	....	1	1	1	....	....
....	....	....	....	....	....	....	10	1	2	....	....	3	....	2	2	....	3	2
....	....	....	....	....	....	....	3	....	1	....	....	....	....	1	1	2	....	3
....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	1	....
....	....	....	....	....	....	....	5	....	....	....	....	....	....	....	....	....	....	2
....	....	....	....	....	....	....	3	....	1	....	....	....	1	3	....	1	....	1
....	....	....	....	....	....	....	1	....	....	....	....	1	....	1	....	....	....	2
....	....	....	....	....	....	....	7	1	5	....	3	3	6	1	....	1	....	4
....	....	....	2	1	3	3	38	1	19	1	22	14	13	22	9	16	10	22
2	....	2	1	1	1	4	84	14	34	2	50	31	46	61	21	32	36	53
....	....	....	....	....	....	3	6	1	6	2	2	1	4	5	3	4	3	8
....	....	....	....	....	....	....	1	....	....	....	1	1	....	1	....	....	....	....
....	....	....	....	....	....	....	1	....	....	....	1	2	....	....	....	....	....	....
....	....	....	....	....	....	....	1	1	1	....	....	2	....	2	1	....	....	....
....	....	....	....	....	1	....	9	1	5	....	3	7	....	5	3	5	3	4

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases.	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,819	6	......	0	......	2	333	....	....
HORNELLSVILLE	12,000	26	......	9	34.5	10	384	....	1
Bath	3,261	....	......	.....	......	......	......	....	....
CORNING	10,025	12	......	5	41.7	5	417	....	2
Wellsville	5,083	8	......	1	12.5	1	125	....	....
OLEAN	10,000	16	......	3	......	6	......	2	....
Salamanca	3,700	6	......	3	50 0	2	333	....	....
DUNKIRK	14,000	13	......	7	51.7	2	154	....	....
JAMESTOWN	18,627	22	......	10	45.4	5	227	....	....
Westfield	3,000	3	......	1	33.3	2	666	....	....
Fredonia	3,400	8	......	1	12.5	1	125	....	....
Rest of district	250,000	258	12.5	58	22.3	50	192	1	7
EAST CENTRAL DISTRICT									
Totals	415,000	534	15.5	131	24.5	122	228	....	12
SYRACUSE	120,000	168	16.5	60	35.7	47	280	....	4
Baldwinsville	3,040	10	......	2	20.0	2	200	....	1
De Witt	5,182	6	......	1	16.7	1	167	....	1
CORTLAND	8,600	9	......	1	11.1	1	111	....	....
Homer	3,000	1	......	0	......	......	......	....	....
Oneida	6,100	9	......	2	22.2	1	111	....	....
Hamilton	4,110	6	......	0	......	0	......	....	....
Cazenovia	3,803	8	......	3	37.5	1	125	....	....
Brookfield	3,235	2	......	0	......	0	......	....	....
Norwich	6,000	12	......	4	33.3	2	167	....	....
Oneonta	8,000	9	......	3	33.3	6	666	....	....
Worcester	2,670	1	......	0	......	......	......	....	....
Cooperstown	3,000	1	......	0	......	0	......	....	....
Walton	4,811	....	......	......	......	......	......	....	....
Delhi	3,000	5	......	1	20.0	3	600	....	....
Liberty	3,500	9	......	0	......	0	......	....	1
Rest of district	230,000	278	14.3	54	19.5	58	203	....	5
WEST CENTRAL DISTRICT									
Totals	325,000	396	15.0	89	22.2	72	180	....	1
AUBURN	35,000	46	......	19	41.3	20	435	....	....
ITHACA	13,460	14	......	5	35.7	2	142	....	....
Hector	4,832	4	......	2	50.0	0	......	....	....
Waterloo	4,350	8	......	2	25.0	2	250	....	....
Seneca Falls	6,500	7	......	2	28.5	3	428	....	....
GENEVA	11,800	10	......	3	30.0	3	300	....	....
Canandaigua	5,868	17	......	4	23.6	2	118	....	....
Manchester	4,181	3	......	1	33.3	1	333	....	....
Phelps	5,160	8	......	1	12.5	1	125	....	....
Penn Yan	4,800	3	......	2	66.6	2	666	....	....
Batavia	7,221	9	......	2	22.2	2	222	....	....
Dansville	3,758	....	......	......	......	......	......	....	....
Le Roy	3,000	6	......	1	16.7	0	......	....	....
Warsaw	4,700	3	......	0	......	0	......	....	....
Rest of district	212,000	258	14.5	45	17.8	34	134	....	1
LAKE ONTARIO AND WESTERN DISTRICT									
Totals	890,000	1,234	16.0	433	35.3	370	300	5	31
BUFFALO	370,000	509	14.5	203	40.0	160	335	3	13
TONAWANDA	9,000	10	......	4	40.0	3	300	....	1
Amherst	4,000	11	......	3	27.3	4	364	....	....

FOR AUGUST—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	2	1	1	....	......	....	1	......	....	....	1	....
....	....	....	....	....	....	....	9	......	3	....	4	2	2	2	....	1	....	2
....	....	....	....	....	....	....	...	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	3	2	1	....	1	....	2	......	....	....	1	....
....	....	....	....	....	....	....	1	......	......	....	3	....	2	......	....	2	....	....
....	....	....	....	....	....	....	4	......	1	....	......	....	......	3	1	1	2	2
....	....	....	....	....	....	....	2	1	......	....	......	....	......	......	....	1	1	1
....	....	....	....	....	....	....	2	......	......	....	4	....	......	1	1	....	2	3
....	....	....	....	....	....	....	5	2	2	....	......	1	1	4	2	1	1	3
....	....	....	....	....	....	....	2	......	......	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	1	1	2	....	1	....	......	2	....	1	....	....
2	....	2	1	1	....	1	35	4	12	....	30	15	33	36	10	16	22	30
....	....	....	3	....	6	3	100	9	41	1	47	38	55	74	38	27	35	45
....	....	...	1	....	4	....	38	2	11	1	19	17	12	19	12	9	4	15
....	....	....	....	....	....	....	1	......	......	....	......	1	......	3	....	2	1	1
....	....	....	....	....	....	....	1	......	......	....	......	....	......	1	1	....	1	1
....	....	....	....	....	....	....	1	......	......	....	......	2	1	2	1	....	2	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	1	......	2	....	......	1	......	2	....	1	1	1
....	....	....	....	....	....	....	....	......	1	....	1	1	......	2	....	....	....	1
....	....	....	....	....	....	....	1	......	......	....	1	1	1	2	1	....	....	1
....	....	....	....	....	....	....	....	......	1	....	......	....	......	......	1	....	....	....
....	....	....	....	....	....	....	2	1	1	....	1	1	1	1	....	1	1	2
....	....	....	....	....	....	3	3	......	......	....	......	1	2	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	...	......	......	1	....	...	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	3	......	......	....	......	1	......	......	....	...	....	1
....	....	....	....	....	....	....	....	......	3	....	......	....	......	2	....	2	....	1
....	....	....	2	....	2	...	49	6	22	...	25	12	36	40	21	12	25	21
....	...	....	1	....	1	3	66	14	32	2	35	19	55	63	21	18	28	37
....	....	....	....	....	....	....	20	3	2	1	2	....	3	8	....	3	....	4
....	....	....	....	....	....	...	2	......	3	....	......	1	1	2	....	2	1	2
....	....	....	....	....	....	....	....	......	......	....	1	....	......	1	....	....	1	1
....	....	....	....	....	....	....	2	......	1	....	1	....	2	......	....	....	....	2
....	....	....	....	....	....	....	3	......	1	....	......	1	......	......	....	1	1	....
....	....	....	....	....	....	....	3	......	1	....	......	....	......	1	1	3	....	1
....	....	....	....	....	....	....	2	1	1	....	3	1	1	3	1	....	2	2
....	....	....	....	....	....	....	1	......	......	....	......	....	......	1	1	....	....	....
....	....	....	....	....	....	....	1	......	1	....	1	1	2	......	....	....	1	1
....	....	....	....	....	....	....	2	......	......	....	......	....	1	......	....	....	....	....
....	....	....	....	....	....	....	2	......	2	....	......	1	1	......	2	....	....	1
....	....	....	....	....	....	....	....	......	....	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	1	....	1	1	....	....	....	1
....	....	....	....	....	....	....	....	......	1	....	......	....	1	......	....	....	....	1
....	....	....	1	...	1	3	28	9	18	1	26	14	42	46	16	9	22	21
2	...	4	2	1	12	7	306	40	89	11	83	71	103	153	68	66	72	108
1	....	2	....	....	5	2	134	14	32	6	36	35	27	70	32	23	22	52
....	....	....	....	....	1	....	1	1	1	....	2	....	......	1	....	....	1	1
....	....	....	....	....	....	....	4	1	1	....	......	....	3	......	1	....	1	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	*Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)									
NORTH TONAWANDA	9,000	7	......	2	28.5	2	285	....	....
LOCKPORT	16,088	30	......	2	6.6	4	133	....	2
NIAGARA FALLS	16,000	24	......	14	58.4	12	500	....	3
Medina	4,500	6	......	1	16.7	2	333	....	....
Albion	4,536	9	......	4	44.4	5	555	....	....
Brockport	3,742	4	......	0	......	0	......	....	....
ROCHESTER	180,000	220	15.9	68	31.0	60	273	....	4
Palmyra	4,173	9	......	0	......	0	......	....	....
Newark	4,600	2	......	0	......	0	......	....	....
Lyons	6,127	2	......	0	......	0	......	....	....
Clyde	3,000	3	......	1	33.3	1	333	....	....
OSWEGO	22,000	44	......	15	34.0	15	340	....	2
Fulton	4,214	13	......	5	38.4	7	538	....	....
Richland	3,637	2	......	0	......	0	......	....	....
Rest of district	231,000	329	16.6	112	34.0	95	287	2	6
Totals for the state	7,110,000	11,047	18.5	4,223	38.3	2,611	237	47	174
Average for five years past	....	10,984	20.0	4,456	40.5	2,750	250	46	168

REMARKS—The 11,047 deaths this month are nearly the average of the past five years, as is the decrease of 800 from the reported mortality of July. The death rate is 18.5 against 19.5 in July. There were over 500 fever deaths under the age of five years, the percentage being 38.3 against 40.6, both being lower than the average. The percentage of zymotic deaths was nearly the same as in July, 23.7. The decrease in diarrheal mortality has been less than the average, 1,985 deaths being from this cause, or 100 less than in July. Deaths from typhoid fever and malarial diseases have increased, scarlet fever and measels have diminished. The decrease from July has been in local diseases, all of which caused fewer deaths. There were likewise fewer deaths from accidents and violence; 777 against a monthly average for the year of 528. Of 275 deaths from violence outside New York city 80 were from drowning (nearly 30 per cent), 5 from lightning stroke, 12 from sunstroke; of the rest 41 were from railroad (15 per cent), 2 electric car, 3 wagon accidents, 8 electric shock, 9 poisoning, 10 burning, 15 suicide, 1 execution.

FOR AUGUST—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH.										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	2	......	......	....	......	2	1	......	2	....	....	....
....	....	....	....	....	....	....	2	1	2	1	2	3	3	2	1	6	5	....
....	....	2	....	....	2	....	5	2	2	....	1	....	......	1	....	1	1	4
....	....	....	....	....	....	....	2	......	1	1	......	....	1	1	....	....	....	....
....	....	....	....	....	....	....	5	......	......	....	2	....	......	......	1	1	....	....
....	....	....	....	....	....	....	....	......	......	....	......	1	1	......	1	....	1	....
....	....	....	....	....	3	1	52	14	17	....	9	12	19	36	9	16	10	18
....	....	....	....	....	....	....	....	1	1	....	......	....	1	2	1	....	3	....
....	....	....	....	....	....	....	....	......	1	....	1	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	....	......	......	1	....	....	....
....	....	....	....	....	....	....	1	......	......	....	1	....	1	......	....	....	....	....
1	....	....	....	....	....	3	9	2	2	2	1	2	7	2	3	3	2	3
....	....	....	....	....	....	....	7	......	......	....	1	....	3	1	....	....	1	....
....	....	....	....	....	....	....	....	1	......	....	......	....	1	......	....	....	....	....
....	....	....	2	1	1	1	82	3	23	1	27	16	35	37	16	16	25	30
37 40	2 0	22 25	49 50	11 16	86 132	198 221	1985 2062	577 623	1,047 1,038	84 74	1,244 1,098	681 623	773 766	995 1,009	436 364	777 835	379 443	1,443 1,361

Of all deaths 8,200 occurred in cities and villages of over 10,000 population and 2,850 in the rest of the state. The urban death rate was 18.3 against 20.5 in July; the rural death rate on the other hand is increased, being 15.0 against 13 0 in July. 17.3 per cent of the urban deaths were from diarrheal diseases, and 20.0 per cent of the rural; these deaths having decreased from July in the urban towns by 450, whilst in rural towns the number of diarrheal deaths is more than double that of July.

Diphtheria causes in August fewer deaths than in any other month in this state; there were 198 deaths, a small decrease from July, the average of the past five years being 221, past 10 years 307, past 15 years 348. There were more deaths than in August of the past two years, the distribution being general, with no special epidemic reported. No smallpox has existed in the state since July. Reports indicate an unusual prevalence of typhoid fever in all parts of the state, and give promise of an excessive mortality in the succeeding month.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,935,000	5,600	17.3	2,308	41.2	1,009	180	21	109
CITY OF NEW YORK Totals	3,654,594	5,214	19.4	2,187	41.8	930	178	21	104
BOROUGH OF MANHATTAN	2,007,241	2,779	16.8	1,191	43.3	488	175	15	53
BOROUGH OF THE BRONX	174,370	328	22.8	99	30.0	42	128	1	2
BOROUGH OF BROOKLYN	1,267,158	1,791	17.3	776	43.2	341	190	5	38
BOROUGH OF QUEENS	136,559	213	19.0	79	37.0	36	170	....	5
BOROUGH OF RICHMOND	69,266	103	18.0	42	40.8	20	184	....	5
Oyster Bay	15,000	......	......	......	......	......	......	....	....
Hempstead	21,000	18	......	6	33.3	5	277	....	1
North Hempstead	8,726	13	......	3	23.0	1	77	....	....
Southold	7,671	13	......	3	23.0	6	460	....	1
Sag Harbor	3,000	3	......	0	......	1	333	....	....
Huntington	8,253	6	......	5	......	......	......	....	....
Brookhaven	13,5.0	28	......	4	15.7	4	157	....	....
YONKERS	45,000	68	......	23	33.8	10	148	....	....
Greenburg	12,000	19	......	6	31.5	3	167	....	....
MOUNT VERNON	15,513	19	......	6	31.5	4	157	....	....
Port Chester	7,547	17	......	11	65.0	6	352	....	....
Sing Sing	9,500	22	......	6	27.3	3	136	....	1
NEW ROCHELLE	10,000	20	......	5	25.0	4	200	....	1
Peekskill	10,000	16	......	5	31.2	2	125	....	....
White Plains	4,042	6	......	1	16.7	2	333	....	....
Rest of district	90,000	118	15.7	38	32.0	29	250	....	1
HUDSON VALLEY DISTRICT Totals	700,000	1,039	17.6	310	29.5	273	256	4	48
ALBANY	100,000	125	15.5	23	18.4	13	104	....	4
COHOES	25,000	35	......	16	45.7	9	257	....	....
TROY	65,000	149	27.5	42	28.0	46	308	1	16
WATERVLIET	14,000	21	......	7	33.3	10	490	....	3
Green Island	4,500	8	......	1	14.2	4	570	....	1
Lansingburg	12,000	18	......	6	33.3	6	333	....	2
Hoosick Falls	7,014	10	......	1	10.0	0	......	....	....
RENSSELAER	8,000	8	......	2	25.0	1	125	....	....
Coxsackie	3,824	4	......	0	......	1	250	....	1
Catskill	5,000	......	......	......	......	......	......	....	....
HUDSON	10,000	16	......	3	18.7	0	......	....	....
KINGSTON	25,000	39	......	11	28.2	4	103	....	....
Ellenville	3,000	4	......	1	25.0	1	250	....	....
Marbletown	3,689	8	......	2	25.0	3	375	1	1
Rosendale	6,125	15	......	6	40.0	6	400	....	....
Esopus	5,035	6	......	1	16.7	2	333	....	....
Saugerties	4,237	6	......	5	83.3	5	833	....	....
POUGHKEEPSIE	25,000	29	......	11	37.8	5	172	....	....
Fishkill	12,000	26	......	8	30.7	2	77	....	1
Wappingers Falls	3,718	7	......	1	14.2	2	285	....	....
NEWBURGH	36,000	40	......	10	25.0	11	275	....	4
Port Jervis	9,327	10	......	2	20.0	2	200	....	....
MIDDLETOWN	12,000	21	......	6	28.5	2	95	....	....
Warwick	6,000	10	......	3	30.0	4	400	....	1
Goshen	4,646	3	......	0	......	0	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during September, 1900

in *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
31	....	9	16	10	32	93	691	456	601	43	741	448	331	405	200	366	125	872
27	....	9	16	10	30	89	624	439	562	38	717	419	293	348	189	343	109	827
3	....	8	....	4	20	37	348	264	285	20	360	237	150	167	111	194	62	441
7	....	1	1	1	1	5	22	19	85	2	29	18	16	36	10	16	6	49
6	....	....	15	4	9	43	224	142	165	15	287	144	102	116	55	100	30	291
11	....	....	....	1	....	1	18	10	16	1	25	16	14	18	10	25	7	35
....	....	....	....	....	....	3	12	4	11	....	16	4	11	11	3	8	4	11
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	4	1	....	....	2	1	3	4	1	....	....	1
....	....	....	....	....	....	....	1	....	1	....	1	2	1	2	....	2	1	2
1	....	....	....	....	....	1	3	....	....	....	....	1	1	3	....	....	1	1
....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	1
....	....	....	....	....	....	....	2	....	....	....	1	....	....	1	....	....	....	2
....	....	....	....	....	....	....	4	1	....	....	2	3	3	4	1	4	3	3
1	....	....	....	....	....	1	8	6	9	1	2	6	7	11	2	3	1	10
1	....	....	....	....	....	....	2	3	4	....	1	1	2	3	....	1	....	1
....	....	....	....	....	....	1	3	1	2	1	1	2	3	1	1	1	....	2
....	....	....	....	....	....	....	6	....	1	....	1	....	....	4	1	....	1	3
....	....	....	....	....	....	....	2	....	3	1	1	3	1	2	3	2	1	2
....	....	....	....	....	....	....	3	2	3	....	3	1	2	1	....	1	2	1
....	....	....	....	....	....	....	2	3	....	1	....	....	1	3	....	1	....	5
....	....	....	....	....	....	....	2	....	1	....	....	....	1	....	....	1	1	....
1	....	....	....	....	2	1	24	....	15	1	9	9	13	18	1	7	5	11
5	....	2	1	2	9	22	180	51	96	8	90	67	92	119	48	38	51	106
....	....	....	....	....	....	4	5	10	14	3	17	16	11	21	3	3	6	8
....	....	....	....	....	1	....	8	1	4	1	4	1	3	4	1	....	....	7
....	....	....	....	....	....	1	28	5	17	....	12	9	11	20	6	4	4	11
....	....	....	....	....	....	....	7	2	1	....	3	1	1	....	....	....	2	1
....	....	....	....	....	....	1	2	....	1	....	....	....	....	....	....	1	1	1
....	....	....	....	....	....	1	3	3	....	....	....	3	2	1	1	....	....	2
....	....	....	....	....	....	....	....	1	3	....	1	1	1	....	2	1	....	....
....	....	....	....	....	....	....	1	....	....	....	1	....	3	....	....	....	1	2
....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	3	....	3	1	1	2	1	1	....	3
....	....	1	....	....	....	....	3	1	4	....	7	4	4	4	3	1	1	6
1	....	....	....	....	....	....	....	....	....	....	1	1	1	....	....	....	....	....
....	....	....	....	....	....	....	1	....	....	....	....	1	....	1	....	....	1	2
....	....	....	....	1	1	3	1	....	1	....	2	1	1	2	1	....	....	1
....	....	....	....	....	....	....	2	....	....	....	1	....	1	1	....	....	1	....
....	....	....	....	....	1	....	4	....	1	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	5	2	1	1	1	2	3	4	2	1	2	5
....	....	....	....	....	....	....	1	1	3	....	2	2	2	5	1	1	3	4
....	....	....	....	....	....	....	2	....	....	....	1	....	....	....	1	....	1	2
....	....	....	....	....	1	2	4	2	6	....	2	3	4	5	1	1	1	4
....	....	....	....	....	....	....	2	....	....	....	....	1	1	....	....	1	....	5
1	....	....	....	....	....	....	1	....	1	....	2	....	5	2	....	3	....	6
....	....	....	....	....	1	....	2	1	....	....	1	....	3	....	....	....	1	....
....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	1

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	10	......	8	80.0	6	600	1	....
Haverstraw	7,714	26	......	13	50.0	9	346	....	....
Nyack	5,603	6	......	2	33.3	2	333	....	....
Ramapo	6,600	18	......	6	33.3	6	333	....	1
Rest of district	275,000	361	15.5	103	28.2	111	300	1	13
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	495	15.4	171	34.4	141	285	4	7
WATERTOWN	17,000	38	......	20	52.6	17	418	1	2
Ellisburgh	4,223	8	......	3	37.5	0	......	....	....
Cape Vincent	3,000	4	......	1	......	2	......	....	....
Clayton	4,250	5	......	2	40.0	2	400	....	....
OGDENSBURG	12,900	16	......	6	37.5	2	125	....	....
Gouverneur	6,000	12	......	5	41.6	4	250	1	....
Potsdam	4,000	3	......	1	33.3	1	333	....	....
Canton	6,013	6	......	4	66.7	3	500	....	....
Malone	5,000	15	......	7	46.7	5	333	....	....
Plattsburg	8,400	15	......	7	46.7	4	267	....	....
Glens Falls	12,500	21	......	6	28.6	2	95	....	....
Whitehall	4,500	3	......	2	66.6	1	333	....	....
Fort Edward	4,500	10	......	4	40.0	3	300	....	....
Kingsbury	5,112	4	......	1	25.0	1	250	....	....
Granville	5,281	14	......	7	50.0	7	500	....	....
Greenwich	4,500	7	......	1	14.2	0	0	....	....
Lowville	4,000	2	......	0	......	......	0	....	....
Rest of district	280,000	312	14 0	94	30.0	87	278	2	5
MOHAWK VALLEY DISTRICT									
Totals	395,000	595	18.2	194	32.2	142	240	2	11
SCHENECTADY	28,791	39	......	21	54.0	9	230	....	....
Cobleskill	3,436	4	......	0	......	1	250	....	....
AMSTERDAM	20,000	17	......	10	59 0	5	300	....	....
Fort Plain	3,000	......	......	......	......	......	......	....	....
JOHNSTOWN	7,768	13	......	5	38.4	2	153	....	....
GLOVERSVILLE	15,000	21	......	6	26.5	5	240	1	2
LITTLE FALLS	12,000	12	......	3	25.0	2	166	....	....
Herkimer	5,150	10	......	5	50.0	2	200	....	....
Ilion	4,057	2	......	0	......	0	......	....	....
UTICA	55,000	115	26.0	47	40.8	27	235	....	....
Whitestown	5,225	10	......	3	30.0	1	100	....	....
ROME	14,000	23	......	7	30.0	6	260	1	....
Boonville	3,512	10	......	3	30.0	5	500	....	....
Camden	3,675	2	......	0	......	0	......	....	....
Waterford	5,522	8	......	1	12.5	1	125	....	....
Mechanicville	3,000	6	......	4	66.6	2	333	....	1
Ballston Spa	3,527	5	......	0	......	0	......	....	....
Saratoga Springs	12,500	25	......	6	24.0	2	80	....	....
Rest of district	192,000	273	17.0	73	26.7	72	265	....	8
SOUTHERN TIER DISTRICT									
Totals	425,000	495	14.0	132	26 4	133	267	....	15
BINGHAMTON	45,000	59	......	9	15.2	9	152	....	1
Owego	6,000	10	......	1	10 0	2	200	....	....
Candor	3,525	9	......	1	11.1	2	222	....	....
Waverly	4,123	3	......	0	......	0	......	....	....
ELMIRA	40,000	39	......	11	28.2	6	154	....	....

FOR SEPTEMBER—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	1	4	......	......	....	......	....	......	......	....	....	1	3
1	....	....	....	....	....	2	6	2	1	....	2	4	1	1	....	2	....	4
....	....	....	....	....	1	....	1	......	......	....	......	1	......	2	....	....	....	1
....	....	....	....	....	....	....	5	......	2	....	......	1	1	2	2	1	3	....
2	....	1	1	1	3	7	82	15	30	2	27	14	32	42	23	16	22	27
....	....	....	1	....	2	3	124	19	43	4	42	25	36	42	26	22	33	62
....	....	....	....	....	....	....	14	......	1	....	10	1	2	1	2	....	2	2
....	....	....	....	....	....	....	....	1	1	....	......	....	1	2	....	1	1	1
....	....	....	....	....	....	....	2	......	......	....	......	....	1	......	....	1	....	....
....	....	....	....	....	....	....	2	......	......	....	......	....	1	......	....	....	....	2
....	....	....	....	....	....	....	2	1	3	....	1	1	......	5	....	....	2	1
....	....	....	....	....	....	....	3	......	......	....	1	....	2	......	1	....	2	2
....	....	....	....	....	....	....	1	......	......	....	......	....	1	......	....	....	....	1
....	....	....	....	....	....	....	3	1	......	....	......	....	......	......	....	....	....	2
....	....	....	....	....	....	....	5	......	......	1	2	1	1	2	2	....	1	....
....	....	....	....	....	....	....	4	1	......	1	2	1	1	......	....	....	....	5
....	....	....	....	....	....	....	2	1	7	....	3	1	2	2	....	....	....	3
....	....	....	....	....	....	....	1	......	......	....	1	....	......	......	....	....	....	1
....	....	....	....	....	....	....	3	2	......	....	1	1	1	1	....	....	....	1
....	....	....	....	....	....	....	1	......	......	....	1	....	......	......	1	1	....	....
....	....	....	....	....	....	....	7	......	1	....	......	1	......	......	2	....	....	3
....	....	....	....	....	....	....	....	......	1	....	1	....	......	2	1	....	1	1
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	....	1	....	....
....	....	....	1	....	2	3	74	12	29	2	19	18	22	27	17	18	24	37
1	....	....	1	....	7	9	111	29	54	2	55	39	29	71	23	35	38	74
....	....	....	....	....	1	....	8	......	3	....	4	....	1	4	2	3	8	10
....	....	....	....	....	....	....	1	......	1	....	......	....	......	1	....	....	....	1
....	....	....	....	....	....	2	3	2	1	....	......	....	......	3	....	1	2	3
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	2	......	2	....	1	....	1	1	....	1	1	4
....	....	....	....	....	....	1	1	1	2	....	2	2	2	3	....	1	2	1
....	....	....	....	....	....	....	2	......	1	....	2	1	......	2	1	....	....	3
....	....	....	....	....	....	....	2	2	2	....	1	....	......	2	....	....	....	1
....	....	....	....	....	....	....	....	......	......	....	2	....	......	......	....	....	....	....
....	....	....	....	....	5	3	19	5	12	1	12	9	5	12	2	7	7	16
....	....	....	....	....	....	....	1	1	......	....	......	1	......	1	....	1	2	3
....	....	....	1	....	....	....	4	2	1	....	3	....	1	1	3	1	2	3
....	....	....	....	....	....	....	5	......	1	....	......	....	1	1	1	1	....	....
....	....	....	....	....	....	....	....	......	1	....	......	1	......	......	....	....	....	....
....	....	....	....	....	....	....	1	2	......	....	......	1	1	2	1	....	....	....
....	....	....	....	....	....	....	1	......	......	....	1	....	......	......	....	....	....	3
....	....	....	....	....	....	....	....	......	......	....	1	2	......	1	1	....	....	....
....	....	....	....	....	....	....	2	2	5	....	1	6	1	4	....	1	1	2
1	....	....	....	....	1	3	59	12	22	1	25	16	16	33	12	22	18	24
....	....	....	....	....	1	7	110	12	33	4	36	28	41	60	21	32	39	56
....	....	....	....	....	....	4	4	1	3	2	3	4	5	11	3	3	6	9
....	....	....	....	....	....	....	2	......	2	....	1	....	1	......	1	....	1	2
....	....	....	....	....	....	....	2	......	......	....	......	1	1	2	....	1	2	....
....	....	....	....	....	....	....	....	1	1	....	......	....	......	1	....	....	....	....
....	....	....	....	....	1	....	5	1	2	1	2	3	6	4	5	2	2	5

MONTHLY BULLETIN

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	8	......	2	25.0	2	250	....	....
HORNELLSVILLE	12,000	12	......	4	33.3	4	333	....	1
Bath	3,261	3	......	1	33.3	2	665	....	....
CORNING	10,025	12	......	8	66.6	7	582	....	1
Wellsville	5,033	5	......	2	40.0	1	200	....	....
OLEAN	10,000	9	......	2	22.2	1	111	....	....
Salamanca	3,700	4	......	2	50.0	1	250	....	....
DUNKIRK	14,000	15	......	6	40.0	6	400	....	1
JAMESTOWN	18,627	......	......	......	......	......	......	....	....
Westfield	3,000	2	......	0	......	1	500	....	....
Fredonia	3,400	8	......	2	25.0	2	250	....	....
Rest of district	250,000	297	14.4	71	23.4	87	290	....	11
EAST CENTRAL DISTRICT									
Totals	415,000	537	16.0	150	28.0	161	300	1	21
SYRACUSE	120,000	142	14 4	36	25.5	34	240	....	9
Baldwinsville	3,040	1	......	0	......	......	......	....	....
De Witt	5,182	6	......	4	66.6	2	333	....	....
CORTLAND	8,600	15	......	6	40.0	4	267	....	....
Homer	3,000	4	......	1	25.0	3	750	....	....
Oneida	6,100	5	......	2	40.0	0	......	....	....
Hamilton	4,110	5	......	2	40.0	1	200	....	....
Cazenovia	3,803	1	......	0	......	0	......	....	....
Brookfield	3,235	5	......	1	20.0	1	200	....	....
Norwich	6,000	10	......	3	30.0	4	400	....	1
Oneonta	8,000	9	......	2	22.2	2	222	....	1
Worcester	2,670	6	......	1	16.7	0	......	....	....
Cooperstown	3,000	6	......	2	33.3	2	333	....	....
Walton	4,811	8	......	1	12.5	4	500	....	1
Delhi	3,000	5	......	1	20.0	2	400	....	1
Liberty	3,500	3	......	0	......	1	333	....	....
Rest of district	230,000	306	16.0	88	28.5	101	330	1	8
WEST CENTRAL DISTRICT									
Totals	325,000	418	15.5	111	26.0	131	308	4	11
AUBURN	35,000	43	......	16	37.2	15	350	....	3
ITHACA	13,460	21	......	6	28.5	7	333	1	1
Hector	4,832	9	......	3	......	3	......	....	....
Waterloo	4,350	9	......	2	22.2	1	111	....	....
Seneca Falls	6,500	10	......	6	60.0	4	400	....	....
GENEVA	11,800	15	......	5	33.3	4	267	....	....
Canandaigua	5,868	12	......	6	50.0	4	333	....	....
Manchester	4,181	8	......	1	12.5	2	250	....	....
Phelps	5,150	10	......	2	20.0	3	300	....	1
Penn Yan	4,800	1	......	1	......	1	......	....	....
Batavia	7,221	15	......	4	26.7	6	400	....	1
Dansville	3,758	5	......	0	......	2	400	....	1
Le Roy	3,000	9	......	2	22.2	5	555	1	....
Warsaw	4,700	3	......	1	33 3	2	666	....	....
Rest of district	212,000	248	14.5	56	22 5	72	290	2	4
LAKE ONTARIO AND WESTERN DISTRICT									
Totals	890,000	1,072	14.5	383	35.7	250	242	5	23
BUFFALO	370,000	437	14.9	188	43 0	122	280	3	12
TONAWANDA	9,000	10	......	3	30.0	1	100	....	....
Amherst	4,000	1	......	0	......	1	......	....	....

FOR SEPTEMBER—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	2	......	1	....	......	1	1	1	....	....	2	....
....	....	....	....	....	....	....	3	......	......	....	2	....	1	1	1	....	2	1
....	....	....	....	....	....	....	2	......	......	....	......	....	......	1	....	....	....	....
....	....	....	....	....	....	....	6	......	1	....	1	....	1	1	....	....	....	1
....	....	....	....	....	....	....	1	......	......	....	1	....	1	1	....	1	....	....
....	....	....	....	....	....	....	1	2	......	....	......	....	......	2	....	1	1	2
....	....	....	....	....	....	....	1	......	......	....	......	....	1	2	....	....	....	....
....	....	....	....	....	....	....	5	2	1	....	......	2	1	1	....	1	....	1
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	1	......	1	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	2	......	......	....	3	....	......	......	....	....	1	2
....	....	....	....	....	....	3	73	5	21	1	23	17	22	32	11	23	22	83
1	....	....	1	2	1	2	132	19	39	3	42	31	41	45	25	29	45	57
1	....	....	....	....	....	2	22	7	19	1	13	12	14	11	9	6	6	10
....	....	....	....	....	....	....	....	......	......	....	1	....	......	......	....	....	....	....
....	....	....	....	....	....	....	2	......	......	....	1	....	......	......	....	1	1	1
....	....	....	....	....	....	....	4	1	1	....	2	1	1	1	1	....	1	2
....	....	....	....	....	....	....	3	......	......	....	......	1	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	....	......	1	....	1	....	2
....	....	....	....	....	....	....	1	1	......	....	......	1	......	......	....	....	1	1
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	1	....	....	....
....	....	....	....	....	1	....	....	......	......	1	......	....	......	......	1	....	....	2
....	....	....	....	....	....	....	3	......	......	....	1	....	1	2	1	....	1	....
....	....	....	....	....	....	....	1	......	1	....	......	....	......	1	1	3	1	....
....	....	....	....	....	....	....	....	1	......	....	1	1	......	1	....	....	1	1
....	....	....	....	....	....	....	2	2	......	....	1	....	......	......	....	....	1	....
....	....	....	....	....	....	....	3	1	......	....	......	1	1	......	....	....	....	1
....	....	....	....	....	....	....	1	......	......	....	1	....	1	1	....	....	....	....
....	....	....	....	....	....	....	1	1	......	....	......	1	......	......	....	....	....	....
....	....	....	1	2	....	....	89	5	17	1	21	13	23	27	11	18	32	37
2	....	....	....	2	6	6	100	11	30	1	44	24	43	48	17	18	25	26
....	....	....	....	....	....	....	12	......	6	....	2	2	3	5	1	2	1	6
....	....	....	....	....	....	1	4	......	......	....	1	2	4	1	1	1	3	1
....	....	....	....	....	....	....	3	2	......	....	2	....	......	......	....	....	2	....
1	....	....	....	....	....	....	....	1	1	....	1	....	2	2	....	1	....	....
....	....	....	....	....	....	....	4	......	1	....	2	1	......	1	....	....	1	....
....	....	....	....	....	....	....	4	......	......	....	2	1	3	1	....	1	1	2
....	....	....	....	....	....	....	4	1	......	....	1	1	2	......	....	....	2	1
....	....	....	....	....	....	....	2	......	1	....	2	1	......	......	1	1	....	....
....	....	....	....	....	....	....	2	......	......	....	2	....	2	1	....	1	....	1
....	....	....	....	....	....	....	1	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	1	4	2	......	....	......	1	2	......	1	2	....	1
....	....	....	....	....	....	....	1	......	......	....	......	....	2	......	....	....	1	....
....	....	....	....	....	....	....	4	......	1	....	1	....	......	......	....	2	....	....
....	....	....	....	....	....	....	2	......	......	....	......	....	......	1	....	....	....	....
1	....	....	....	2	6	4	53	5	20	1	28	15	23	36	13	7	14	14
1	....	1	1	....	8	12	208	48	84	7	93	65	92	115	45	61	64	139
....	....	1	....	....	2	4	100	27	38	5	32	20	22	50	17	21	18	65
....	....	....	....	....	....	....	1	......	......	....	3	....	3	......	....	1	1	1
....	....	....	....	....	....	....	1	......	......	....	......	....	......	......	....	....	....	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic diseases per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)									
NORTH TONAWANDA	9,000	12	......	5	41.8	3	250	....	1
LOCKPORT	16,088	28	......	11	39.3	8	286	....	1
NIAGARA FALLS	16,000	23	......	6	26.0	4	174	1	....
Medina	4,500	12	......	5	41.8	2	166	....	....
Albion	4,536	5	......	3	60 0	2	400	....	....
Brockport	3,742	6	......	1	16.6	0	......	....	
ROCHESTER	180,000	172	12.9	56	32.5	30	174	....	2
Palmyra	4,173	8	......	1	12.5	2	250	....	....
Newark	4,600	8	......	4	50.0	3	375	....	....
Lyons	6,127	8	......	3	37 5	2	250	....	....
Clyde	3,000	8	......	2	25.0	3	375	....	1
OSWEGO	22,000	33	......	10	30.3	6	182	....	2
Fulton	4,214	9	......	3	33.3	2	222	....	....
Richland	3,637	5	......	2	......	2	......	....	....
Rest of district	231,000	287	15.0	80	28.0	66	230	1	4
Totals for the state	7,110,000	10,251	16.5	3,760	36.7	2,252	220	41	245
Average for five years past	....	9,950	18.2	3,675	37.0	2,084	205	50	227

PREVENTION OF TYPHOID FEVER—September is in every year the month of highest mortality from typhoid fever, and 40 per cent of the yearly deaths come in the three fall months. There is a constant decrease through the months following September till June, when the lowest point is reached, and a rise follows which is always considerable in August. This is true of the rural parts of the state especially and the total of the state mortality, the only exception being found in certain smaller cities which have taken their water supply from navigable rivers receiving sewage, and whose increase has been in the winter months. In the rural parts of the state this is an autumnal fever.

Why this season should have so definite a relation to the prevalence of typhoid fever is of practical interest.

It is a common observation, long recognized, that hot, dry summers are followed by increase of prevalence in the fall following, and per contra. We have not data at hand to verify this at length, but of Septembers of the series of years noted, that of 1897 had much the lowest mortality (157; average, 210), and in that year from March to August there was an excess of rainfall amounting to nearly four inches for the state, and an average temperature constantly below the normal. In 1898 it was the largest on record (333 deaths), and through June and July there was deficiency of rainfall and excess of temperature; the large death-rate was in a measure due then to the deaths at Camp Wyckoff and importation from the army in Cuba. The following year was one of average weather during the summer and the typhoid death-rate was low in the fall. This current year has been one of excessive dryness and heat over much of the state, and the mortality has been least in the rainy areas, as the Adirondack district, and it has been excessive in some dry areas. Autumnal increase varies, then, with the character of the summer weather, which, perhaps, helps to a solution.

The fact is accepted that with minor exceptions typhoid fever is contracted from the drinking water; also that the germs of the disease are given off in the intestinal discharges from those sick with it. While in cities these discharges are emptied into the sewer, in the country they are commonly deposited in or upon the ground, and the problem of control of the disease is quite different. How long the germs will live outside the body varies much with the medium in which they are placed, sewage water, clean water or the earth They are known to live five or six months and will probably live almost indefinitely in the earth, at least its upper layers. It appears probable that the following happens: In a low level of ground water, after a dry summer the germs deposited in the soil, perhaps the year before, come to the higher activity; sharp showers follow by which they are carried into all the sources of water supply, into the wells over the area thus reached, and an outbreak in that area follows. This rationale of phenomena is more in harmony with facts observed in our epidemics investigated and with general present knowledge of the disease than any other theory.

The practical deduction is that the germ-laden excreta of the sick, especially in the country, where they are almost of necessity disposed of in the soil, and where typhoid fever is the common yearly disease, should be disinfected. Disinfection is generally attempted but is almost never abosolute or pernament, generally because imperfectly done.

Heat is certain to destroy the germs Burning them by mixing sawdust with the help of a combustible, as kerosene oil, would be effective. It is probable that quick-lime of suitable

FOR SEPTEMBER—*(Concluded)*

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	2	1	......	....	1	...	......	2	...	1	....	4
....	....	....	....	....	1	....	6	2	4	....	2	1	......	3	2	2	1	3
....	....	....	....	....	....	....	3	......	3	....	4	2	......	3	....	5	....	2
....	....	....	....	....	....	1	1	......	2	....	......	....	......	3	....	1	....	4
....	....	....	....	....	....	....	2	......	......	....	1	....	2	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	1	1	......	1	....	....	1	1
....	....	....	1	....	4	3	20	5	17	1	13	10	18	21	7	9	15	26
....	....	....	....	....	....	....	2	......	......	....	1	1	1	......	1	...	2	....
....	....	....	....	....	....	....	3	......	1	....	......	....	1	2	1	....	....	....
....	....	....	....	....	....	....	2	......	......	...	1	....	......	......	1	2	....	2
....	....	....	....	....	....	....	2	1	1	....	......	...	1	1	....	....	....	1
....	....	....	....	....	1	....	3	4	3	1	2	4	5	......	2	1	3	2
....	....	....	....	....	....	1	1	1	2	....	......	2	......	2	....	....	....	....
....	....	....	....	....	....	....	2	......	......	....	......	1	......	1	....	....	....	1
1	....	....	....	....	....	3	57	7	12	....	32	21	39	26	14	18	23	27
41	0	12	21	16	66	154	1656	645	980	72	1,143	727	705	905	403	605	420	1,392
50	0	26	28	10	100	218	1354	762	1,011	61	990	606	765	976	331	636	419	1,289

amount added would develop in slacking sufficient heat, for the germs perish at a temperature below 200 degrees and the quick-lime would further aid by its alkalinity. It is moreover easy of application. Of the common disinfectant solutions, the best are: (1) Commercial carbolic acid, a ten per cent solution; (2) corrosive sublimate, one ounce in four gallons of water, adding one-half ounce of commercial hydrochloric or sulphuric acid; (3) chlorinated lime in powder or mixed with a moderate quantity of water. These fail because of imperfect use; they are only effective by thorough mixture so that every particle of the mass is reached, and then left for one or two hours, preferably in the sunlight.

The best disposal in the country is probably in the earth; not on or near the surface, but four feet beneath it, where the germs are more likely to perish; and remote from any well or water-course. Quick-lime or chlorinated lime should be added and the trench eventually compactly covered. Health officers should see that rinsings from bedpans are likewise cared for, that utensils of the sick and soiled bedding are disinfected, the patient kept clean, likewise the hands of nurses, that flies are excluded, that dairymen or any who handle milk having typhoid fever in their family do not sell milk, and that all this care be continued until 10 days after the patient's temperature becomes normal. Wherever the disease breaks out all should be warned to avoid drinking water that is not sterilized by boiling, unless from a surely uninfected source. The suggestions are chiefly for use in rural localities.

Remarks—There were 800 fewer deaths this month than in the previous one, the urban death rate being 17.0 against 18.5 in August, the rural being 16.0 against 15.0 in August. The chief [illegible]ture of the month is the large rural mortality from diarrheal diseases, only 970 of the 1,651 [illegible] occurring in towns of over 10,000 population or about 20 per 100,000 population for the [illegible] the rural rate being 30. Of 960 deaths from diarrhea (all outside New York City), 130 [illegible]red above the age of 70 years, mostly rural deaths. Of 107 deaths from typhoid fever 12 [illegible]nder 10 years of age, 58 between 10 and 30 years of age, 38 between 30 and 50, [illegible] were over 50, one being at the age of 80. Of all deaths there were 3,755 under [illegible] of age, being 35.7 per cent, the maritime district having the highest relative infant [illegible], 41.2 per cent; the west-central the lowest, 26.0 per cent. Of 5,025 deaths outside [illegible] City, 876 occurred above the age of 70 years, 17.4 per cent. The number of [illegible] to old age was 420. The typhoid fever death rate was nearly the same in the [illegible]ral parts of the state. The mortality from it is a little above the normal; [illegible]valence of it reported in numerous localities, but the type of it is milder [illegible]tality so far as observed being less than has been customary.

[illegible]2.0 per cent of the mortality of the month, diarrheal diseases [illegible] fever 2.4 per cent, and diphtheria 1.5 per cent. There were 300 [illegible] average for the month, the proportion to the total mortality [illegible].3 per cent, and highest in the Adirondack, Southern tier, [illegible] cent. Consumption and acute respiratory diseases all have [illegible]digestive diseases had an excessive mortality. Outside the [illegible]drowning and three from sun-stroke. There has been no [illegible] The weather was generally warm and dry, but there [illegible]prevailed.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT Totals	3,728,427	5,578	17.5	1,923	34.5	667	119	19	108
CITY OF NEW YORK Totals	3,444,675	5,148	17.6	1,805	25.6	588	114	19	97
BOROUGH OF MANHATTAN	1,851,887	2,837	17.9	932	34.6	276	97	10	47
BOROUGH OF THE BRONX	202,092	370	21.6	130	46.0	46	125	3	5
BOROUGH OF BROOKLYN	1,169,796	1,638	16.5	581	35.4	215	130	5	39
BOROUGH OF QUEENS	153,734	221	16.9	71	32.3	37	168	....	5
BOROUGH OF RICHMOND	67,166	82	14.5	31	37.8	14	170	1	1
Oyster Bay	15,000	14	......	3	22.0	2	142	....	....
Hempstead	24,003	41	......	12	29.0	9	220	....	1
North Hempstead	8,726	12	......	5	41.7	3	250	....	....
Southold	7,671	10	......	2	20.0	2	200	....	2
Sag Harbor	3,000	3	......	1	33.3	0	......	....	....
Huntington	8,253	14	......	4	28.5	3	214	....	....
Brookhaven	13,500	19	......	6	31.5	5	263	....	2
YONKERS	45,000	61	......	22	36.0	10	165	....	....
Greenburg	12,000	15	......	4	26.5	5	333	....	....
MOUNT VERNON	15,513	21	......	7	33.3	2	96	....	....
Port Chester	7,547	18	......	4	22.2	4	222	....	1
Sing Sing	9,500	8	......	1	12.5	0	......	....	....
NEW ROCHELLE	10,000	15	......	0	......	0	......	....	....
Peekskill	10,000	20	......	4	20.0	6	300	....	1
White Plains	4,012	13	......	3	23.0	2	154	....	1
Rest of district	90,000	146	19.0	40	28.0	26	180	....	3
HUDSON VALLEY DISTRICT Totals	700,000	987	16.0	249	23.5	180	180	4	42
ALBANY	100,000	144	17.0	39	27.0	21	145	....	5
COHOES	25,000	37	......	17	46.0	9	245	....	1
TROY	65,000	119	21.5	35	29.0	23	193	1	9
WATERVLIET	14,000	16	......	3	18.7	3	187	....	....
Green Island	4,500	8	......	2	25.0	1	125	....	1
Lansingburg	12,000	14	......	4	28.5	4	285	....	2
Hoosick Falls	7,014	6	......	0	......	0	......	....	....
RENSSELAER	8,000	13	......	1	7.7	2	154	....	....
Coxsackie	3,824	5	......	1	20.0	2	400	....	1
Catskill	5,000	5	......	0	......	1	200	....	1
HUDSON	10,000	5	......	1	......	......	......	....	....
KINGSTON	25,000	40	......	10	25.0	6	150	....	....
Ellenville	3,000	6	......	1	16.7	2	333	...	....
Marbletown	3,689	4	......	0	......	2	5 0	...	2
Rosendale	6,125	7	......	3	42.8	2	885	....	1
Esopus	5,035	7	......	0	......	0	......	....	....
Saugerties	4,237	6	......	1	16.7	4	666	1	....
POUGHKEEPSIE	25,000	33	......	13	39.3	2	60	....	....
Fishkill	12,000	13	......	2	15.3	3	230	...	1
Wappinger Falls	3,718	8	......	5	62.5	5	625	....	....
NEWBURGH	36,000	55	......	16	29.1	10	181	....	3
Port Jervis	9,327	15	......	4	26.7	0	......	...	....
MIDDLETOWN	12,000	28	......	5	17.8	5	178	....	....
Warwick	6,000	8	......	1	12.5	2	250	...	1
Goshen	4,645	6	......	1	16.7	0	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during October, 1900

in *italic* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
33	....	12	10	9	25	158	293	602	702	41	592	490	384	446	197	316	153	898
31	....	12	10	8	22	142	246	647	663	39	557	466	345	388	185	295	132	843
9	....	3	3	5	16	49	134	414	342	19	293	277	186	198	110	187	75	460
7	....	5	3	....	...	7	16	25	85	5	27	20	23	31	9	19	7	73
8	....	3	3	3	5	66	83	176	210	:2	214	141	106	133	56	70	38	267
7	....	1	1	....	2	12	9	21	19	3	21	22	22	18	6	14	8	30
....	....	....	....	....	....	8	4	11	7	....	2	6	8	8	4	5	4	13
....	....	....	....	....	....	1	1	1	5	....	2	2	1	......	....	....	....	1
....	....	....	....	....	....	2	6	1	3	....	7	3	5	3	....	2	2	6
....	....	....	....	....	....	1	2	1	1	....	1	1	......	......	1	2	....	2
....	....	....	....	....	....	....	....	......	2	....	1	....	1	1	....	2	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	1	....	....	....	1
....	....	....	....	....	....	2	1	2	......	1	2	1	1	1	....	....	...	3
....	....	....	....	....	....	....	3	1	1	....	1	1	2	3	....	....	1	4
....	....	....	....	....	....	1	9	14	......	....	2	4	6	9	2	2	3	9
....	....	....	....	....	....	5	....	......	......	....	2	....	......	4	2	...	1	1
....	....	....	....	....	....	....	2	2	3	....	3	2	1	4	....	1	....	3
....	....	....	....	....	....	....	3	3	2	....	1	....	......	2	....	1	2	3
....	....	....	....	....	....	....	....	1	......	....	2	1	3	......	1	....	....	....
....	....	....	....	....	....	....	....	2	2	....	1	1	4	......	1	1	1	2
....	....	....	....	1	....	2	2	1	3	....	1	1	2	2	1	1	....	2
....	....	....	....	....	....	....	1	1	......	....	2	....	......	3	....	3	2	....
2	....	....	....	....	2	2	17	15	17	1	7	7	12	25	4	6	8	18
1	....	4	1	....	9	19	100	71	106	3	92	72	97	117	38	52	45	114
....	....	1	....	....	1	9	5	12	14	1	11	16	19	17	7	10	8	8
....	....	1	....	..	....	....	7	3	1	....	3	3	6	1	....	5	....	6
....	....	1	....	....	2	2	8	11	17	...	11	9	12	12	1	1	4	18
....	....	....	....	....	1	....	2	1	3	....	2	1	2	1	1	1	....	1
....	....	....	....	....	....	....	....	......	3	....	1	1	1	1	....	....	....	....
....	....	....	....	....	...	....	2	2	......	....	......	1	1	2	....	....	1	3
....	....	....	....	....	....	....	....	1	1	....	1	....	......	1	....	....	2	....
....	....	....	....	....	...	1	....	2	1	....	......	1	......	......	2	1	2	3
...	....	....	....	....	....	....	1	......	......	....	......	...	......	......	1	....	....	2
....	....	....	....	....	....	....	....	......	......	....	......	....	2	2	....	....	....	....
....	....	....	....	....	...	....	....	......	1	....	1	1	......	1	....	....	....	1
....	....	1	....	....	....	....	5	1	6	....	3	2	1	2	2	9	2	6
....	....	....	1	....	....	....	1	......	2	....	......	....	......	1	....	....	....	1
....	....	....	...	....	....	....	...	......	......	....	......	....	2	......	...	....	....	....
....	....	....	....	....	....	....	1	......	......	....	2	....	......	1	1	....	....	1
....	....	....	....	....	....	....	....	......	1	....	......	1	1	2	1	....	1	....
....	....	....	....	....	1	....	2	......	......	....	......	1	......	......	1	....	....	....
....	....	....	....	....	....	....	2	3	4	....	2	2	2	7	1	1	1	8
....	....	....	....	....	....	...	2	2	......	1	2	1	1	......	....	2	....	1
1	....	....	....	....	....	2	2	......	......	....	1	....	1	1	....	....	....	....
....	....	....	....	....	....	1	6	4	7	....	6	6	3	7	2	2	1	7
....	....	....	....	....	....	....	....	......	2	....	1	1	5	2	2	....	1	1
....	....	....	....	....	1	....	4	2	2	....	4	3	2	2	1	1	2	4
....	....	....	....	....	....	....	1	......	2	....	1	1	1	......	....	....	1	....
....	....	....	....	...	....	....	....	1	1	....	......	2	1	1	....	....	....	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	8	....	5	62.5	2	250	....	1
Haverstraw	7,714	4	....	2	....	....	....	....	....
Nyack	5,603	9	....	4	44.4	2	222	....	....
Ramapo	6,600	13	....	5	38.5	3	230	....	....
Rest of district	275,000	345	14.5	68	27.8	64	185	2	13
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	467	14.1	123	26.3	108	231	....	27
WATERTOWN	17,000	34	....	13	38.2	6	176	....	2
Ellisburgh	4,223	3	....	0	....	1	333	....	....
Cape Vincent	3,000	5	....	2	40.0	1	200	....	....
Clayton	4,250	1	....	0	....	0	....	....	....
OGDENSBURG	12,000	14	....	5	35.7	4	285	....	....
Gouverneur	6,000	12	....	4	33.3	5	418	....	1
Potsdam	4,000	....	....	....	....	....	....	....	....
Canton	6,013	12	....	1	8.3	2	166	....	1
Malone	5,000	3	....	1	33.3	1	133	....	1
Plattsburg	8,400	9	....	2	22.2	0	....	....	....
Glens Falls	12,500	24	....	5	20.8	4	166	....	1
Whitehall	4,500	1	....	0	....	0	....	....	....
Fort Edward	4,500	5	....	2	40.0	0	....	....	....
Kingsbury	5,112	5	....	3	60.0	0	....	....	....
Granville	5,281	8	....	2	25.0	1	125	....	....
Greenwich	4,500	5	....	2	40.0	1	200	....	....
Lowville	4,000	5	....	1	20.0	1	200	....	....
Rest of district	280,000	321	13.5	80	25.0	81	250	....	21
MOHAWK VALLEY DISTRICT									
Totals	400,000	496	14.7	138	27.6	90	180	2	21
SCHENECTADY	31,682	46	....	13	28.4	14	304	....	3
Cobleskill	3,436	4	....	1	25.0	1	250	....	....
AMSTERDAM	20,000	16	....	7	40.0	1	66	....	....
Fort Plain	3,000	....	....	....	....	....	....	....	....
JOHNSTOWN	7,768	9	....	4	44.4	2	222	....	....
GLOVERSVILLE	15,000	22	....	6	27.2	4	....	....	3
LITTLE FALLS	12,000	20	....	3	15.0	8	400	....	4
Herkimer	5,150	5	....	2	40.0	1	200	....	....
Ilion	4,057	6	....	1	16.7	1	167	....	....
UTICA	56,383	87	18.0	25	28.7	16	183	....	1
Whitestown	5,225	6	....	1	16.7	1	167	....	....
ROME	14,000	9	....	4	44.4	2	222	....	....
Boonville	3,512	3	....	0	....	0	....	....	....
Camden	3,675	3	....	0	....	1	333	....	....
Waterford	5,522	7	....	2	28.5	0	....	....	....
Mechanicville	3,000	4	....	0	....	1	250	....	1
Ballston Spa	3,527	5	....	3	60.0	1	200	....	....
Saratoga Springs	12,500	23	....	5	21.3	2	87	....	....
Rest of district	192,000	221	14.0	31	13.5	34	156	2	9
SOUTHERN TIER DISTRICT									
Totals	425,000	493	14.2	71	14.5	91	185	3	24
BINGHAMTON	45,000	76	....	15	19.7	17	223	....	5
Owego	6,000	7	....	0	....	0	....	....	....
Candor	3,525	3	....	1	33.3	1	333	....	....
Waverly	4,123	3	....	0	....	0	....	....	....
ELMIRA	40,000	47	....	12	25.5	9	192	1	1

FOR OCTOBER—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH											
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
							1	1			2		1			1		1
							1	1					1	1				
							2	1	1		1		1				1	2
							3						3	5				2
					3	4	42	23	37	1	37	19	28	47	15	18	18	38
			7	1	5	3	65	31	37	2	39	27	44	50	22	20	29	58
							4	1	4		4	4	1	3	2		1	8
							1						2					
							1		2								1	1
											1							
							4	2	2		1		2				1	2
							4	1	1		1		2					2
							1	1	1		1	1		2	1	1	1	1
									1								1	
								1			1		2	2	1		2	
					2		1		3	1	2	1	4	1	4		1	3
												1						
								1						3	1			
								1	1						1			2
							1				1	2	1	1	1			1
							1							2				2
							1		2		1			1				
			7	1	3	3	46	23	20	1	26	18	30	35	11	19	21	36
1			4	1	2	14	45	27	47	2	53	35	46	61	16	22	44	53
			3		1	2		2	6		4	4	2	7		3		4
							1		1						1		1	
						1		2	3			2		1		1	3	3
							2		2		2					1	1	1
							1			1	2	4	1	5		1	1	3
						2	2		2		1		1	3	1	3	1	
							1		1		1	1						1
			1						1		1	1		1		1		
1				1		4	9	7	4	1	9	6	6	10	4	4	6	14
							1		1		1	1					1	1
							2				1		3	1			1	1
														1		1	1	
							1							1				1
									1		1	2						3
													1			1	1	
							1	1			1							2
							2	1			3	2	9	1			2	3
					1	5	17	14	25		26	12	23	30	10	6	25	16
2		4		1	3	11	43	31	32	1	36	31	57	58	27	32	46	51
		3				8	1	5	4		6	3	7	10	3	3	7	11
							0	1	1				2		1		2	
							1						2					
												1				1	1	
1		1					5	2	2		6	4	6	2	2	2	4	

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	12	......	4	33.3	6	500	....	1
HORNELLSVILLE	12,000	10	......	0	......	1	100	....	....
Bath	3,261	4	......	0	......	1	250	....	....
CORNING	10,025	15	......	1	6 6	1	66	....	....
Wellsville	5,033	9	......	2	22.2	2	222	....	1
OLEAN	10,000	......	......	......	......	......	......	....	....
Salamanca	3,700	7	......	2	28.5	0	......	....	....
DUNKIRK	14,000	16	......	3	18.5	0	......	....	....
JAMESTOWN	18,627	24	......	3	13.0	1	43	....	1
Westfield	3,000	5	......	0	......	1	200	....	1
Fredonia	3,400	5	......	2	40.0	2	400	....	....
Rest of district	250,000	250	12.0	26	10.4	49	195	2	14
EAST CENTRAL DISTRICT Totals	406,425	466	13.1	86	18.7	76	165	3	22
SYRACUSE	108,374	126	13.7	29	23.0	20	158	....	6
Baldwinsville	3,040	4	......	1	25.0	1	250	....	....
De Witt	5,182	11	......	0	......	0	......	....	....
Cortland	8,600	6	......	2	33.3	3	500	....	1
Homer	3,000	5	......	1	20.0	0	......	....	....
Oneida	6,100	8	......	1	12.5	0	......	....	....
Hamilton	4,110	3	......	0	......	0	......	....	....
Cazenovia	3,803	6	......	0	......	......	......	....	1
Brookfield	3,235	5	......	0	......	1	200	....	....
Norwich	6,000	7	......	2	28 5	1	142	....	....
Oneonta	8,000	7	......	3	42.5	1	142	....	....
Worcester	2,670	4	......	1	25.0	0	......	....	....
Cooperstown	3,000	3	......	0	......	1	333	....	....
Walton	4,811	......	......	......	......	......	......	....	....
Delhi	3,000	6	......	0	......	1	166	1	....
Liberty	3,500	5	......	2	40.0	1	200	....	1
Rest of district	230,000	260	13.0	44	17.0	45	175	2	13
WEST CENTRAL DISTRICT Totals	325,000	362	13.1	55	15.2	57	160	....	14
AUBURN									
ITHACA	35,000	39	......	11	28.2	6	154	....	....
Hector	13,460	19	......	2	10.5	2	105	....	1
Waterloo	4,832	3	......	1	33.3	1	333	....	....
Seneca Falls	4,350	6	......	2	33.3	3	500	....	1
GENEVA	6,500	10	......	1	10.0	0	......	....	....
Canandaigua	11,800	10	......	4	40.0	3	300	....	....
Manchester	5,868	......	......	......	......	......	......	....	....
Phelps	4,181	5	......	1	20.0	1	200	....	....
Penn Yan	5,150	6	......	0	......	0	......	....	....
Batavia	4,800	7	......	3	42.8	0	......	....	....
Dansville	7,221	7	......	2	28.5	1	142	....	1
Le Roy	3,758	6	......	1	16.7	2	333	....	1
Warsaw	3,000	6	......	2	3.33	3	500	....	2
Rest of district	4,700	4	......	0	......	0	......	....	....
	212,000	234	13.2	25	10.7	35	150	....	8
LAKE ONTARIO AND WESTERN DISTRICT Totals	860,272	827	11.0	219	26.4	142	171	5	25
BUFFALO	352,219	330	11.3	112	34.0	76	230	2	14
TONAWANDA	9,000	6	......	1	16.7	0	......	....	....
Amherst	4,000	2	......	1	33.3	1	333	....	....

FOR OCTOBER—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	5	....	....	....	....	....	2	....	....	1	2	1
....	....	....	....	....	....	....	1	1	1	....	3	1	1	1	....	....	....	1
....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	1	....	1	....
....	....	....	....	....	....	....	1	2	....	....	2	1	2	2	....	2	2	1
....	....	....	....	....	....	....	1	1	....	....	....	....	2	1	....	....	1	2
....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	1	1	....	1	1	2
....	....	....	....	....	....	....	....	2	2	....	1	4	1	....	....	2	2	2
....	....	....	....	....	....	....	....	2	4	....	1	2	3	1	3	6	....	1
....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	1	1
....	....	....	....	....	2	....	....	....	....	....	....	1	....	1	....	....	....	1
1	....	....	....	1	1	3	27	14	18	1	17	13	28	37	17	14	22	20
....	....	2	1	1	....	4	43	19	40	5	45	22	71	60	18	29	25	56
....	....	....	....	....	....	2	12	8	16	1	10	9	21	13	4	6	4	14
....	....	....	....	....	....	1	....	....	1	1	....	....	....	....	....	....	....	1
....	....	....	....	....	....	....	....	1	2	....	4	....	2	1	....	1	....	....
....	....	....	....	....	....	....	2	....	....	....	1	....	....	....	1	1	....	....
....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	....	1	1	....
....	....	....	....	....	....	....	....	1	2	....	1	....	2	....	1	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	1	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	1	....
....	....	....	....	....	....	....	1	....	....	....	....	1	2	....	....	....	1	....
....	....	....	....	....	....	....	1	....	....	....	2	1	....	1	....	....	....	1
....	....	....	....	....	....	....	1	....	1	....	....	....	....	2	1	1	....	2
....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	1	....	1
....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	1	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	2	....	1	1	....
....	....	....	....	....	....	....	....	2	1	....	....	....	....	....	....	....	....	2
....	....	2	1	1	....	1	25	7	16	3	26	9	40	38	10	16	16	34
....	....	....	....	....	1	4	38	23	29	1	31	28	49	42	26	18	29	....
....	....	....	....	....	....	2	4	1	5	....	4	1	4	5	3	2	1	....
....	....	....	....	....	....	....	1	3	2	....	1	3	4	3	1	....	....	....
....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....	1	....
....	....	....	....	....	....	....	2	....	....	....	....	....	1	....	1	....	1	....
....	....	....	....	....	....	....	....	1	....	....	1	3	1	3	....	....	1	....
....	....	....	....	....	1	....	2	....	1	....	1	3	1	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	....	....	....	1	2	....	....	....	....	....	1
....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	2	1	1	....
....	....	....	....	....	....	....	....	1	1	....	....	....	2	1	1	....	....	1
....	....	....	....	....	....	....	....	1	2	....	1	....	....	....	....	1	....	1
....	....	....	....	....	....	....	1	....	....	....	....	1	1	....	....	1	....	1
....	....	....	....	....	....	....	1	....	1	....	1	....	....	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	1	....	....	....
....	....	....	....	....	....	2	25	15	16	1	20	15	33	29	17	13	23	16
....	....	2	1	....	9	15	85	73	83	7	67	55	82	100	32	51	58	75
....	....	1	....	....	7	5	47	31	32	6	20	26	19	29	10	26	22	33
....	....	....	....	....	....	....	....	1	....	....	....	1	1	1	....	2	....	....
....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	1	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Con.*)									
NORTH TONAWANDA	9,000	12	......	4	33.3	2	166	....	....
LOCKPORT	16,088	22	......	8	38.1	3	143	1	....
NIAGARA FALLS	16,000	20	......	9	45.0	5	250	....	....
Medina	4,500	3	......	1	33.3	1	333	....	....
Albion	4,536	3	......	1	33.3	1	333	....	....
Brockport	3,742	7	......	0	......	0	......	...	....
ROCHESTER	162,436	175	12.7	41	23.4	22	126	....	5
Palmyra	4,173	3	......	0	......	0	......	....	....
Newark	4,600	8	......	3	37.5	3	375	1	....
Lyons	6,127	7	......	0	......	1	142	....	1
Clyde	3,000	....	......	......	......	......	......	....	....
OSWEGO	22,000	24	......	5	20.8	3	125	....	....
Fulton	4,214	....	......	......	......	......	......	....	....
Richland	3,637	....	......	......	......	......	......	....	....
Rest of district	231,000	204	10.5	33	16.0	24	120	1	5
Totals for the state	7,110,000	9,676	16.0	2,864	29.6	1,411	146	36	283
Average for five years past	....	9,198	16.5	2,700	29.5	1,257	135	35	223

NOTE—With this issue the population of the boroughs of New York city are changed to the estimate for the middle of the year made subsequent to the report of the United States census;

FOR OCTOBER—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diptheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	1	....	1	1	2	....	5	...	......	1	....	....	1	....
....	....	....	....	....	....	....	2	2	2	....	2	2	3	1	....	....	1	6
....	....	....	....	....	1	2	2	3	......	....	5	....	1	2	....	2	....	2
....	....	1	....	....	....	....	....	1	......	....	......	....	......	1	....	....	....	....
....	....	....	....	....	....	...	1	......	......	....	1	....	......	1	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	...	3	......	1	....	1	1
....	....	....	....	....	....	7	10	16	21	....	12	11	17	32	12	9	14	9
....	....	....	....	....	....	....	....	1	......	....	......	....	2	......	....	....	....	....
....	....	....	....	....	....	....	2	1	1	....	......	....	2	......	1	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	....	2	1	1	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	3	1	2	....	1	1	6	2	1	....	2	5
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	1	...	....	1	16	14	24	1	21	14	26	28	6	12	15	19
37 45	 1	24 39	24 30	13 14	54 68	228 325	712 477	967 1,034	1,078 1,056	62 68	955 788	760 654	830 831	934 920	376 354	540 522	429 436	1,334 1,278

also of a few other cities as announced in the press the official report of the census of the state not yet having been made.

MONTHLY BULLETIN OF THE NEW

Abstracts of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT									
Totals	3,728,427	5,134	16.6	1,463	28.5	509	95	26	95
CITY OF NEW YORK									
Totals	3,444,675	4,784	17.0	1,367	28.6	464	97	26	93
BOROUGH OF MANHATTAN	1,851,887	2,643	17.2	766	28.6	235	90	18	41
BOROUGH OF THE BRONX	202,092	294	17.6	81	27.5	34	110	3	1
BOROUGH OF BROOKLYN	1,169,796	1,588	16.5	442	27.8	168	105	5	47
BOROUGH OF QUEENS	153,734	186	14.7	62	33.3	22	118	....	2
BOROUGH OF RICHMOND	67,166	73	13.0	16	22.0	5	75	...	2
Oyster Bay	15,000	32	......	12	37.5	3	90	....	....
Hempstead	24,000	20	......	5	25.0	3	155	....	....
North Hempstead	8,726	10	......	2	20.0	3	300	....	....
Southold	7,671	5	......	1	......	1	......	....	....
Sag Harbor	3,000	8	......	4	50.0	3	375	....	....
Huntington	8,253	6	......	3	50.0	0	......	....	....
Brookhaven	13,500	17	......	5	30.0	3	120	....	1
YONKERS	45,000	58	......	20	34.5	4	70	....	....
Greenburgh	12,000	22	......	5	30.0	2	125	....	1
MOUNT VERNON	15,513	18	......	5	27.5	2	111	....	....
Port Chester	7,547	....	......	......	......	......	......	....	....
Sing Sing	9,500	9	......	0	......	0	......	....	....
NEW ROCHELLE	10,000	15	......	8	53.0	1	68	....	....
Peekskill	10,000	11	......	3	28.3	0	......	...	....
White Plains	4,042	8	......	3	37.5	2	250	....	....
Rest of district	90,000	111	15.0	20	18.0	18	175	....	....
HUDSON VALLEY DISTRICT									
Totals	700,000	844	14.5	160	28.5	83	98	4	24
ALBANY	100,000	135	16.5	25	18.5	10	75	....	4
COHOES	25,000	37	......	4	10.8	3	81	....	....
TROY	65,000	98	18.0	18	18.2	14	145	1	6
WATERVLIET	14,000	19	......	3	15.8	1	53	....	1
Green Island	4,500	6	......	2	33.3	1	167	....	....
Lansingburg	12,000	11	......	3	27.3	1	90	....	....
Hoosick Falls	7,014	10	......	1	10.0	1	100	....	1
RENSSELAER	8,000	13	......	5	37.5	2	150	....	....
Coxsackie	3,824	3	......	0	......	0	......	...	....
Catskill	5,000	10	......	0	......	0	.....	....	....
HUDSON	10,000	13	......	0	......	1	33	....	....
KINGSTON	25,000	29	......	9	31.0	4	138	....	1
Ellenville	3,000	....	.....	......	......	......	......	...	....
Marbletown	3,689	5	......	1	20.0	1	200	....	....
Rosendale	6,125	6	......	1	16.7	0	......	....	....
Esopus	5,035	8	......	4	50.0	0	......	....	....
Saugerties	4,237	4	......	0	......	0	......	....	....
POUGHKEEPSIE	25 000	25	......	3	12.0	5	200	....	3
Fishkill	12,000	15	......	4	26.7	1	67	1	....
Wappingers Falls	3,718	4	......	2	50.0	0	......	....	....
NEWBURGH	36,000	42	......	9	21.5	1	24	1	....
Port Jervis	9,327	11	......	3	27.3	1	90	....	....
MIDDLETOWN	12,000	19	......	3	15.8	1	53	....	....
Warwick	6,000	6	......	0	......	0	......	....	....
Goshen	4,646	6	......	3	50.0	0	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during November, 1900

in *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
22	1	12	5	7	29	200	112	844	655	46	412	526	360	459	212	250	124	737
18	1	10	5	7	21	186	97	818	623	45	381	499	318	403	197	237	107	692
10	....	5	1	4	12	83	61	457	317	24	218	303	154	202	113	150	67	403
1	1	3	1	....	2	20	2	32	69	5	12	22	26	25	9	18	6	36
2	....	1	3	3	5	70	32	292	196	15	135	152	122	146	70	55	24	213
5	....	1	....	....	1	11	2	27	30	1	12	13	10	22	3	11	6	29
....	....	....	....	....	1	2	....	10	11	....	4	9	6	8	2	3	4	11
....	....	....	....	....	....	2	1	....	....	1	4	1	4	7	3	2	2	5
....	....	....	....	....	....	2	1	2	3	....	2	2	1	2	....	1	3	1
....	....	....	....	....	....	3	....	1	....	....	1	1	1	1	....	1	....	1
....	....	....	....	....	....	....	1	....	....	....	1	....	1	2	....	....	....	....
....	....	....	....	....	1	....	2	1	2	....	1	....	....	1	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	3	....	....	....	2
....	....	....	....	....	....	1	1	....	2	....	2	2	1	3	....	1	1	2
2	....	....	....	....	....	2	....	9	4	....	7	3	4	9	3	2	3	10
....	....	....	....	....	....	1	....	1	1	....	....	3	4	4	1	1	....	5
....	....	2	....	....	....	....	....	2	5	....	4	2	....	....	1	....	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	....	....	1	1	1	2	2	....
1	....	....	....	....	....	....	....	1	2	....	2	1	2	1	1	....	....	4
....	....	....	....	....	....	....	....	1	1	....	....	1	....	3	1	....	....	4
....	....	....	....	....	2	....	....	2	....	....	....	....	3	....	....	....	....	1
1	....	....	....	....	5	3	9	5	10	....	7	11	20	19	4	3	5	9
1	....	5	....	....	2	27	20	84	101	5	67	62	98	120	35	35	53	101
....	....	1	....	....	....	4	1	15	22	1	15	12	14	18	10	3	9	8
....	....	1	....	....	....	....	2	3	5	....	4	4	5	5	1	1	1	5
....	....	1	....	....	....	3	3	8	15	....	9	5	13	9	3	5	7	10
....	....	....	....	....	....	....	....	1	1	....	3	3	1	4	....	....	2	3
....	....	....	....	....	....	1	....	....	1	....	....	....	2	....	....	....	....	2
....	....	....	....	....	....	1	....	3	....	....	1	1	1	....	....	....	2	2
....	....	....	....	....	....	....	....	....	2	....	....	....	2	2	1	....	....	2
....	....	....	....	....	....	2	....	2	2	....	....	....	2	1	....	1	1	2
....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	....	....	1
....	....	....	....	....	....	....	....	....	2	....	1	....	2	1	1	1	1	1
....	....	....	....	....	....	1	....	1	3	....	1	1	1	2	....	....	1	2
1	....	1	....	....	....	1	....	5	1	....	2	1	2	6	....	2	1	5
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	1	....	1	1
....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	4
....	....	....	....	....	....	....	....	....	....	....	2	....	....	1	1	1	1	2
....	....	....	....	....	....	....	....	1	1	....	....	1	....	1	....	....	....	....
....	....	....	....	....	....	....	2	....	3	....	1	1	3	5	....	2	2	3
....	....	....	....	....	....	....	....	2	3	....	2	....	1	3	....	....	....	3
....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	1	....	....
....	....	....	....	....	....	....	....	4	9	....	3	2	8	2	1	4	1	7
....	....	....	....	....	....	1	....	1	....	1	1	2	1	1	....	....	1	2
....	....	....	....	....	1	....	....	3	4	....	1	1	2	2	2	....	....	3
....	....	....	....	....	....	....	....	1	1	....	....	1	1	1	1	....	....	....
....	....	....	....	....	....	....	....	1	....	....	....	....	1	2	....	....	....	2

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—*(Con.)*									
Montgomery	5,259	6	......	2	33.3	0	......	...	...
Haverstraw	7,714	8	......	1	16.7	5	500	...	...
Nyack	5,603	5	......	2	40.0	1	200	1	...
Ramapo	6,600	7	......	1	14.2	0	......	...	...
Rest of district	275,000	283	13.0	51	18.0	29	105	...	8
ADIRONDACK AND NORTH'N DISTRICT Totals	390,000	373	12.0	74	20.0	55	147	2	18
WATERTOWN	17,000	14	......	1	7.0	2	143	...	1
Ellisburgh	4,223	2	......	1	50.0	0	......	...	...
Cape Vincent	3,000	5	......	0	......	0	......	...	...
Clayton	4,250	1	......	0	......	0	......	...	...
OGDENSBURG	12,000	13	......	3	23.0	3	230	...	2
Gouverneur	6,000	4	......	0	......	0	......	...	...
Potsdam	4,000	1	......	0	......	0	......	...	...
Canton	6,013	11	......	1	9.0	0	......	...	...
Malone	5,000	12	......	4	33.3	4	333	...	...
Plattsburg	8,400	10	......	4	40.0	3	300	...	...
Glens Falls	12,500	16	......	3	18.7	2	125	1	...
Whitehall	4,500	3	......	0	......	0	......	...	...
Fort Edward	4,500	7	......	2	28.5	0	......	...	...
Kingsbury	5,112	5	......	0	......	0	......	...	...
Granville	5,281	6	......	0	......	1	167	...	1
Greenwich	4,500	7	......	2	28.5	0	......	...	...
Lowville	4,000	......	......	......	......	......	......	...	...
Rest of district	280,000	256	11.0	53	20.0	40	150	1	14
MOHAWK VALLEY DISTRICT Totals	400,000	499	15.5	140	28.0	83	165	1	28
SCHENECTADY	31,682	49	......	22	45.0	14	285	...	1
Cobleskill	3,436	3	......	0	......	0	......	...	...
AMSTERDAM	20,000	24	......	6	25.0	5	215	...	...
Fort Plain	3,000	......	......	......	......	......	......	...	...
JOHNSTOWN	7,768	11	......	0	......	1	545	...	6
GLOVERSVILLE	15,000	33	......	6	18.2	4	120	...	3
LITTLE FALLS	12,000	16	......	1	6.3	5	312	...	3
Herkimer	5,150	12	......	5	41.6	1	83	...	1
Ilion	4,057	1	......	1	......	......	......	...	...
UTICA	56,383	93	......	30	32.2	12	128	...	2
Whitestown	5,225	5	......	2	40.0	0	......	...	...
ROME	14,000	24	......	4	16.6	1	41	...	...
Boonville	3,512	4	......	0	......	0	......	...	...
Camden	3,675	3	......	0	......	0	......	...	...
Waterford	5,522	8	......	3	37.5	1	125	...	...
Mechanicville	3,000	12	......	8	66.6	7	580	1	1
Ballston Spa	3,527	3	......	1	33.3	0	......	...	...
Saratoga Springs	12,500	19	......	1	5.2	3	157	...	2
Rest of district	192,000	179	12.0	50	27.8	24	135	...	9
SOUTHERN TIER DISTRICT Totals	425,000	398	11.5	62	15.5	52	104	1	21
BINGHAMTON	45,000	50	......	7	14.0	4	80	...	1
Owego	6,000	3	......	0	......	1	333	...	1
Candor	3,525	2	......	0	......	0	......	...	...
Waverly	4,123	4	......	2	50.0	2	500	...	...
ELMIRA	40,000	31	......	2	6.5	2	65	...	2

FOR NOVEMBER—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	1	....	....	1	....	1	2	....	....	....	1
....	....	....	....	....	....	4	1	....	....	....	....	2	....	1	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	1	1	....
....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....	1	1	1
....	....	....	....	....	1	9	11	30	24	3	20	23	32	46	13	12	20	31
....	....	1	6	....	1	11	16	32	41	....	25	19	41	44	21	14	39	42
....	....	....	....	....	....	....	1	....	2	....	2	2	2	....	2	....	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	....	3	....
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	3	....	....	1	....	1	1	1	....	1	2
....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	1	1	....
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	2	....	1	....	2	....	3	2
....	....	....	....	....	....	4	....	....	1	....	....	....	2	1	....	....	....	4
....	....	....	....	....	....	1	2	....	1	....	1	....	2	2	....	....	....	1
....	....	....	....	....	....	1	....	4	....	....	....	1	3	2	1	....	1	2
....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	....	....	....	....
....	....	....	....	....	....	....	....	2	1	....	....	1	....	....	....	1	1	1
....	....	....	....	....	....	....	....	1	....	....	....	....	1	1	....	....	2	....
....	....	....	....	....	....	....	....	1	3	....	....	1	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	3	....	....	2	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	1	6	....	1	5	12	21	31	....	16	13	25	33	14	12	24	27
....	....	....	13	....	9	17	15	60	45	2	33	27	41	67	22	19	39	61
....	....	....	11	....	1	1	....	7	1	....	2	5	2	5	2	4	....	7
....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	1	....
....	....	....	....	....	....	2	3	3	2	....	2	2	....	3	....	2	3	2
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	1	....	....	1	1	....	1	....
....	....	....	....	....	....	1	....	2	2	1	2	3	3	4	2	1	5	4
....	....	....	....	....	....	2	....	2	2	....	....	1	....	1	....	1	3	1
....	....	....	....	....	....	....	....	....	2	....	1	1	1	3	....	2	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
....	....	....	....	....	3	5	2	12	15	1	7	6	6	10	5	3	4	12
....	....	....	....	....	....	....	....	2	....	....	1	....	1	....	....	....	....	1
....	....	....	....	....	....	1	....	6	2	....	1	1	4	6	....	1	2	....
....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	1	....	1	....
....	....	....	....	....	....	....	....	....	1	....	....	1	....	1	....	....	....	....
....	....	....	....	....	....	....	1	....	1	....	....	....	1	3	1	....	....	1
....	....	....	....	....	4	1	....	....	....	....	1	1	....	....	....	1	....	2
....	....	....	....	....	....	....	....	2	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	2	2	....	2	....	2	4	3	....	1	....
....	....	....	2	....	1	4	8	22	13	....	12	6	19	25	7	4	18	29
....	....	3	....	1	3	8	15	30	33	3	37	29	48	50	19	19	41	37
....	....	....	....	....	....	3	....	1	8	....	2	7	4	6	4	6	5	3
....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1
....	....	....	....	....	....	....	2	....	....	....	....	....	1	....	....	1	....	....
....	....	....	....	....	....	....	....	7	2	1	2	3	3	4	4	1	2	....

MONTHLY BULLETIN

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	9	......	1	11.1	1	111	...	....
HORNELLSVILLE	12,000	10	......	3	30.0	2	200	1	....
Bath	3,261	1	......	0	......	0	......	....	....
CORNING	10,025	16	......	2	12.5	2	125	....	1
Wellsville	5,033	5	......	1	20.0	2	400	....	1
OLEAN	10,000	10	......	1	10.0	0	......	....	....
Salamanca	3,700	5	......	1	20.0	2	400	....	....
DUNKIRK	14,000	17	......	5	30.0	2	130	....	....
JAMESTOWN	18,627	35	......	9	25.8	4	117	....	1
Westfield	3,000	3	......	0	......	1	......	....	1
Fredonia	3,400	6	......	3	50.0	2	333	....	....
Rest of district	250,000	191	10.0	25	13.2	25	132	....	13
EAST CENTRAL DISTRICT Totals	406,425	380	11.0	58	15.2	47	123	2	13
SYRACUSE	108,374	96	10.7	15	15.3	10	100	....	3
Baldwinsville	3,040	1	......	0	......	0	......	....	....
De Witt	5,182	1	......	0	......	0	......	....	....
CORTLAND	8,600	7	......	2	28.5	2	285	...	....
Homer	3,000	3	......	0	......	1	......	....	1
Oneida	6,100	6	......	2	33.3	2	333	....	....
Hamilton	4,110	1	......	0	......	1	......	....	1
Cazenovia	3,803	3	......	0	......	6	......	....	....
Brookfield	3,235	3	......	0	......	0	......	....	....
Norwich	6,000	7	......	0	......	0	......	....	....
Oneonta	8,000	9	......	2	22.2	0	......	....	....
Worcester	2,670	1	......	0	......	0	......	....	....
Cooperstown	3,000	7	......	1	14.2	3	428	....	2
Walton	4,811	....	......	......	......	......	......	....	....
Delhi	3,000	....	......	......	......	......	......	....	....
Liberty	3,500	10	......	0	......	3	300	....	2
Rest of district	230,000	225	11.5	36	16.4	25	115	2	4
WEST CENTRAL DISTRICT Totals	325,000	290	11.0	38	13.3	32	108	1	15
AUBURN	35,000	30	......	10	33.3	5	166	1	2
ITHACA	13,460	15	......	0	......	2	133	...	1
Hector	4,832	6	......	0	......	0	......	....	....
Waterloo	4,350	2	......	0	......	0	......	....	....
Seneca Falls	6,500	7	......	2	28.5	0	......	....	....
GENEVA	11,800	11	......	1	9.0	0	......	....	....
Canandaigua	5,868	10	......	1	10.0	1	100	....	....
Manchester	4,181	....	......	......	......	......	......	....	....
Phelps	5,150	3	......	0	......	0	......	....	....
Penn Yan	4,800	5	......	2	40.0	1	200	....	....
Batavia	7,221	15	......	4	26.7	2	133	....	1
Dansville	3,758	4	......	0	......	1	......	....	1
Le Roy	3,000	7	......	0	......	2	285	....	....
Warsaw	4,700	3	......	1	33.3	0	......	....	....
Rest of district	212,000	172	10.0	17	10.0	18	105	....	10
LAKE ONTARIO AND WESTERN DISTRICT Totals	860,000	797	11.5	183	23.0	99	125	1	19
BUFFALO	352,219	341	11.6	105	31.0	36	106	1	5
TONAWANDA	9,000	5	......	2	40.0	0	......	....	....
Amherst	4,000	....	......	......	......	......	......	....	....

FOR NOVEMBER—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	1	....	....	....	1	1	3	....	1	....	....	2
....	....	....	....	....	....	1	....	....	1	....	1	1	1	1	....	....	2	1
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
....	....	1	....	....	....	....	....	1	1	1	2	....	2	3	2	1	....	1
....	....	....	....	....	....	....	1	1	....	....	1	....	....	....	....	1	....	....
....	....	....	....	....	....	....	....	....	1	....	2	....	1	3	....	1	1	1
....	....	1	....	....	....	1	....	....	1	1	1	....	....	....	....	....	....	....
....	....	....	....	....	....	....	2	....	2	....	5	3	1	1	....	1	2	....
....	....	....	....	....	1	1	1	4	4	....	3	1	5	5	....	3	2	4
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1
....	....	....	....	....	1	1	....	1	1	....	....	....	1	....	....	....	....	1
....	....	1	....	1	1	1	8	15	11	....	17	13	24	27	7	4	26	22
2	....	1	7	2	2	6	12	25	31	2	37	16	52	54	30	18	32	36
....	....	....	....	....	1	3	3	10	11	1	8	5	11	9	5	7	7	12
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....
1	....	....	....	....	....	1	....	1	....	....	....	....	1	1	2	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....
....	....	....	....	1	....	1	....	1	....	....	....	1	1	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	....	....
....	....	....	....	....	....	....	....	2	....	....	1	1	1	1	....	1	....	....
....	....	....	....	....	....	....	....	....	1	....	....	....	....	4	2	....	1	1
....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....
....	....	....	....	....	....	....	1	....	....	....	....	....	1	1	....	1	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	1	....	4	....	....	....	....	1	1	....	1	....
1	....	1	7	1	1	1	7	11	15	1	28	9	34	36	17	7	21	21
1	....	2	....	....	1	4	8	19	24	2	28	22	34	41	14	16	26	32
....	....	....	....	....	....	2	....	3	1	....	4	2	1	3	1	1	1	8
....	....	....	....	....	....	1	....	1	1	....	....	2	4	2	1	....	2	....
....	....	....	....	....	....	....	....	....	1	....	2	1	....	....	....	1	1	....
....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....
....	....	....	....	....	....	....	....	2	....	....	2	1	....	1	....	....	....	1
....	....	....	....	....	....	....	....	....	1	....	2	....	2	2	1	....	2	1
....	....	....	....	....	....	....	1	4	2	....	....	....	2	....	1	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	1	....
....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	1	....	....	2
....	....	....	....	....	....	....	1	2	1	....	1	2	....	1	1	....	3	2
....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	1	....	....	....
....	....	....	....	....	1	1	....	....	1	....	....	1	2	....	....	....	1	....
....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	1
1	....	2	....	....	....	....	5	6	16	2	16	13	21	29	6	13	15	17
....	....	9	1	2	3	31	33	78	81	6	55	57	90	120	37	41	47	86
....	....	5	1	....	....	7	17	43	32	6	20	22	38	45	13	20	19	47
....	....	....	....	....	....	....	....	....	1	....	1	1	....	1	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—*(Continued)*									
NORTH TONAWANDA	9,000	4	......	0	......	0	......	....	....
LOCKPORT	16,088	16	......	1	6 3	1	63	....	....
NIAGARA FALLS	16,000	22	......	7	31.8	4	180	....	3
Medina	4,500	3	......	0	......	1	333	....	1
Albion	4,536	......	......	......	......	......	......	....	....
Brockport	3,742	3	......	0	......	0	......	....	....
ROCHESTER	162,436	143	10.0	24	16.8	24	168	....	5
Palmyra	4,173	4	......	0	......	0	......	....	....
Newark	4,600	2	......	0	......	0	......	....	....
Lyons	6,127	10	......	1	10 0	3	300	...	....
Clyde	3,000	4	......	0	......	0	......	....	....
OSWEGO	22,000	31	......	4	13.0	3	98	....	1
Fulton	4,214	7	......	3	42.8	2	285	....	....
Richland	3 637	8	......	1	12.5	1	125	...	....
Rest of district	231,000	194	10.5	35	18.0	24	130	...	4
Totals for the state	7,110,000	8,715	15.5	2,178	25.0	960	110	38	231
Average for five years past	....	8,383	15.2	2,131	25.4	917	110	31	169

SMALLPOX AND VACCINATION—As long as smallpox prevails in the surrounding states, in now a few of which near and remote it has existed extensively for a long time, the state of New York will be exposed to the disease. During the last three years we have had considerable experience with it, commencing with an importation, in 1898, by a traveling theatrical troupe among whose members the disease existed undiscovered until 20 localities in the western part of the state had been visited with public parades and performances, and as a result smallpox was distributed in 14 counties, not less than 320 persons took the disease, and a year passed before it ceased to exist. During this current year smallpox has been brought to 17 places from outside, from near or remote-western or southern states by direct importation to the single locality instead of by peripatetic individuals, and having been in every case recognized promptly has not been permitted to spread; in 13 places only the single imported case occurred, in two there were three or four cases, and in one there were 15 cases all among negro brickyard laborers who brought it from the south and to whom it was limited without spread to the general community.

Now towards the close of November, prior to which time the state has been free for three months from this disease, a repetition of the experience of 1898 on a smaller scale is threatened, in the appearence of another traveling troupe of colored minstrels from the south in whose personnel smallpox has been discovered after having exhibited at eight places in the eastern part of the state, in three of which, Albany, Schenectady and Gloversville, an outbreak has followed, a single case in Albany and several in the other two places and their vicinity. There has also been a considerable outbreak in a locality of New York city which this troupe touched in passing, though the health authorities trace the origin instead to a more remote unrecognized case. The disease has near the end of December branched from these places of original implantation, and appeared in two others—at Big Flats, in Chemung county, where it was probably taken direct from New York, and at Glens Falls, which is apparently indebted to Schenectady for its outbreak.

Past experience has shown that smallpox often gets a secure hold in a locality, by the failure of physicians to recognize it. Comparatively few become familiar with it at the present day in civilized communities, and besides cases now seen are often so mild that they are mistaken for chickenpox. This should be a rigid rule: Allow no adult subject, believed to have chickenpox, at large until it is fully established that what he has is not smallpox.

The following few conspicuous symptoms are given as a guide to the diagnosis of smallpox as now seen, and which may be generally relied on, but not interpreted too literally in some exceptionally slight expressions of the disease;

1. The initial fever: This is marked and lasts three days quite constantly, even in mild cases. The man, for instance, on rising in the morning may feel indisposed but will go to his work, which he will give up at noon and take to bed. At night, or next day his temperature is likely to reach 103 or 104 degrees. Nothing characteristic need be looked for, since the attending symptoms may be those of a severe cold or grippe; too often demand is made for backache and the like which may or not be present.

2. The eruption: This will appear at the end of the third day, and usually the fever then subsides so that often the subject will feel well enough to leave his bed. The eruption will be a papule, enlarging and becoming vesicular; its papular quality is recognized by the induration

FOR NOVEMBER—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	......	1	....	......	1	......	1	....	....	....	1
....	....	....	....	....	....	....	1	2	......	....	2	1	......	5	2	1	....	2
....	....	....	....	....	....	1	....	1	1	....	2	2	......	5	1	2	1	3
....	....	....	....	....	....	....	....	......	1	....	......	....	......	1	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	......	....	......	1	....	....	1	....
....	....	1	....	1	1	11	5	13	22	....	3	14	21	22	5	6	7	6
....	....	....	....	....	....	....	....	......	1	....	......	....	1	1	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	1	1	....	....	....	....
....	....	....	....	....	....	3	....	......	......	....	......	1	......	3	2	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	1	2	1	....	....	....	....
....	....	....	....	....	1	1	....	......	6	....	1	9	5	......	2	1	2	2
....	....	....	....	....	....	2	....	1	......	....	......	1	1	1	....	....	....	1
....	....	....	....	....	....	1	....	2	......	....	1	....	2	2	....	....	....	....
....	....	3	....	1	1	5	10	16	15	....	25	4	19	30	12	11	15	23
26	1	33	32	12	50	304	231	1,172	1,011	66	694	758	764	955	390	412	401	1,132
30	....	50	60	18	45	360	154	1,250	983	66	596	652	839	865	330	452	401	1,032

appreciable to touch. There may be very few or many lesions, first and the most abundant on the exposed surfaces, the face, hands and forearms; often they come on the palms and the roof of the mouth. The papular quality may be lacking on the abdomen. Subsequently they may reach the size and shape of a split pea, and vesicle with its indurated base becoming pustular; but many will dry of their fluid contents within a week continuing only as a scale-covered induration and even that soon perhaps becoming only a red stain. And it is quite possible that in some cases few of the papules will become vesicular, the disease aborting early, cases thus modified occurring along with others of severity. These mild cases will have no recurrence of fever or sense of illness, and only in the severer ones will fever of any intensity continue or return.

Physicians will contrast this description with that of chickenpox, in which the subject is almost never an adult, the initial fever is trifling and lasts generally less than a day, and the eruption, coming in crops, comes mostly on the body and is vesicular from the first with rarely any duration of the base. Keep every doubtful case in seclusion. Overlooked cases and cases where the public did not get the benefit of doubt have proved very costly.

The present comparative immunity of this state from smallpox is chiefly due to very general vaccination, secured by health authorities especially in places where the disease has developed, and more widely by the operation of the law now several years in effect requiring the vaccination of school children. This law is not yet enforced in many rural localities from neglect or because of prejudice against vaccination. The records of this office show that this prejudice has no proper foundation; but those who vaccinate should appreciate the requirements of this small but delicate operation and perform it so as to avoid ill results, which will go far towards overcoming sentiment against it.

There are two requisities of proper vaccination: Pure virus, which there is no difficulty in getting, and cleanliness. Use fresh virus and if it is kept for a little time let it be in a cool, dark, dry place; never touch the charged ends of points nor expose long to the air; never use a point on more than one individual. Make the skin very clean. Then a spot one-eighth of an inch square should be abraded enough to bring a little tinged serum. Use a perfectly clean instrument, the best being a new needle for each individual, the virus being then rubbed well in. The site of vaccinating had better always be on the arm, at the insertion of the deltoid muscle; and it is best to make a second vaccination, one and one-half inches above at the outer edge of the muscle. After drying no further care is necessary save to guard against uncleanly contact by clothing or hands, which has been the chief source of bad results. Children should be vaccinated between three and six months of age. Revaccination should be done at the age of 12 or 14 years. Every one who has been exposed to smallpox should be vaccinated. In a community where smallpox has appeared, general vaccination is desirable, the more since now mild cases may go about undetected.

The utility of vaccination is beyond question. The security of this state, in contrast with that of uncivilized countries at the present day, is wholly due to the protection it has afforded. The operation rightly done is so simple and safe and vaccinia ordinarily so trifling as compared with variola that it is criminal to neglect it for the community and each individual. Health and educational boards ought to use all the authority given them to secure it to every one.

MONTHLY BULLETIN OF THE NEW

Abstract of reports of deaths and causes in the following

[Cities are printed in SMALL CAPS, villages

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes		
								Cerebro-spinal meningitis	Typhoid fever
MARITIME DISTRICT									
Totals	3,728,427	5,629	17.6	1,519	27.0	542	95	19	102
CITY OF NEW YORK									
Totals	3,444,675	5,237	18.0	1,403	26.8	506	96	17	97
BOROUGH OF MANHATTAN	1,851,887	2,867	18.1	770	26.2	253	88	11	49
BOROUGH OF THE BRONX	202,092	315	18.2	85	27.0	40	127	2	2
BOROUGH OF BROOKLYN	1,169,796	1,760	17.8	487	27.6	181	103	4	41
BOROUGH OF QUEENS	153,734	203	15.5	48	24.0	21	100	....	3
BOROUGH OF RICHMOND	67,166	92	16.3	13	14.2	11	120	....	2
Oyster Bay	15,000	14	......	1	7.1	0	......	....	....
Hempstead	24,000	24	......	9	37 5	2	83	....	....
North Hempstead	8,726	15	......	4	26 6	2	133	....	....
Southold	7,671	8	......	1	12.5	0	......	....	....
Sag Harbor	3,000	3	......	1	33.3	0	......	....	....
Huntington	8,253	7	......	2	28.5	2	285	....	....
Brookhaven	13,500	15	......	2	13.3	1	65	....	....
YONKERS	45,000	84	......	39	46.3	10	119	1	....
Greenburg	12,000	17	......	3	20.0	3	200	....	....
MOUNT VERNON	15,513	27	......	20	37.0	1	37	....	....
Port Chester	7,547	4	......	2	50.0	0	......	....	....
Sing Sing	9,500	15	......	2	13.3	1	66	....	1
NEW ROCHELLE	10,000	19	......	6	31.5	2	105	....	....
Peekskill	10,000	15	......	4	26.7	1	65	....	....
White Plains	4,042	9	......	1	11.0	1	111	....	....
Rest of district	90,000	116	14.0	29	25.0	10	55	1	4
HUDSON VALLEY DISTRICT									
Totals	700,000	954	15.8	155	16.2	121	127	3	42
ALBANY	100,000	133	15.6	18	13.5	9	68	....	....
COHOES	25,000	32	......	12	37.5	7	218	1	1
TROY	65,000	120	21.7	23	19.2	23	192	1	12
WATERVLIET	14,000	21	......	3	14.2	5	238	....	1
Green Island	4,500	11	......	1	9.0	0	......	....	....
Lansingburg	12,000	30	......	3	10.0	10	333	....	8
Hoosick Falls	7,014	7	......	2	28.5	0	......	....	....
RENSSELAER	8,000	13	......	3	23.0	5	380	....	1
Coxsackie	3,824	3	......	0	......	1	333	....	1
Catskill	5,000	11	......	4	36.4	0	......	....	....
HUDSON	10,000	14	......	1	7.0	1	70	....	....
KINGSTON	25,000	48	......	7	15.0	6	130	....	....
Ellenville	3,000	10	......	1	10.0	0	......	....	....
Marbletown	3,689	6	......	3	50.0	2	333	....	....
Rosendale	6,125	5	......	2	40.0	2	400	....	1
Esopus	5,035	4	......	1	25.0	0	......	....	....
Saugerties	4,237	8	......	1	12.5	1	125	....	....
POUGHKEEPSIE	25,000	29	......	2	7.0	2	70	...	1
Fishkill	12,000	10	......	2	20.0	0	......	....	....
Wappingers Falls	3,718	5	......	1	20.0	0	......	....	....
NEWBURGH	36,000	32	......	1	3.1	2	63	....	2
Port Jervis	9,327	10	......	1	10.0	0	......	....	....
MIDDLETOWN	12,000	27	......	7	26.0	4	148	....	....
Warwick	6,000	2	......	0	......	......	......	....	....
Goshen	4,646	5	......	0	......	0	......	....	....

YORK STATE BOARD OF HEALTH

districts, cities, villages and towns during December, 1900

in *italics* and towns in Roman type]

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
14	5	34	18	13	25	243	69	1,100	691	47	409	518	445	510	199	270	137	761
13	5	32	17	11	22	226	66	1,024	661	44	372	487	398	463	182	253	115	732
1	....	22	5	6	10	98	51	532	346	21	218	290	212	242	93	167	73	420
2	5	2	4	1	3	17	2	54	81	4	21	17	19	17	10	15	5	32
4	....	8	5	3	6	106	10	378	193	17	117	156	135	171	67	58	35	252
3	....	....	3	1	3	7	1	45	29	2	9	17	20	21	6	10	....	23
3	....	....	....	....	....	4	2	15	12	....	7	7	12	12	6	3	2	5
....	....	....	....	....	....	....	....	......	3	....	2	....	3	2	....	....	3	1
....	....	....	....	....	....	2	....	1	2	....	4	3	4	2	1	1	....	4
1	....	....	....	....	....	1	....	2	2	1	......	2	2	......	1	2	....	1
....	....	....	....	....	....	....	....	2	......	....	1	....	1	3	1	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	1	......	1	....	....	....	....
....	....	....	....	....	....	2	....	......	1	....	1	....	1	......	....	....	1	1
....	....	....	....	....	....	1	....	2	......	....	1	1	1	5	....	1	1	2
....	....	1	1	1	1	4	1	26	4	....	7	5	5	7	3	6	3	8
....	....	....	....	1	....	2	....	4	1	....	1	2	1	1	....	1	2	1
....	....	....	....	....	1	....	....	5	2	....	3	2	4	3	1	1	2	3
....	....	....	....	....	....	....	....	......	2	....	1	....	......	1	....	....	....	....
....	....	....	....	....	....	....	....	3	1	1	1	....	3	2	1	....	2	....
....	....	....	....	....	....	2	....	7	1	....	3	1	1	......	1	1	2	....
....	....	....	....	....	....	1	....	1	1	....	1	1	4	3	1	....	....	2
....	....	....	....	....	....	....	1	1	1	....	2	1	2	......	...	....	1	....
....	....	1	....	....	1	2	1	21	9	1	9	12	15	17	7	4	5	6
2	....	8	5	1	6	34	20	103	102	5	73	73	107	160	29	43	53	85
....	....	2	....	....	1	6	....	14	13	1	11	15	14	21	11	10	3	11
....	....	1	....	....	....	1	3	5	1	....	6	1	2	5	1	....	1	3
....	....	....	....	....	1	4	5	14	18	....	2	13	18	15	1	2	4	10
....	....	....	....	....	....	1	3	3	2	....	2	3	3	1	....	1	....	1
....	....	....	....	....	....	....	....	1	3	....	......	3	1	1	....	....	1	1
....	....	....	....	....	....	2	....	4	3	....	1	2	1	6	....	1	1	1
....	....	....	....	....	....	....	....	......	1	....	1	1	......	2	....	....	1	1
....	....	....	2	....	1	....	1	1	......	....	2	1	1	1	....	1	....	1
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	1	....	1
....	....	....	....	....	....	....	....	1	3	....	......	....	......	4	1	1	1	....
....	....	....	....	....	....	....	1	1	2	1	1	1	2	3	1	1	....	....
....	....	2	....	1	....	2	1	6	1	....	2	2	6	14	....	2	4	5
....	....	....	....	....	....	....	....	1	......	....	1	1	2	1	....	2	....	2
....	....	....	....	....	....	1	1	......	......	....	......	....	......	2	....	....	....	2
....	....	....	....	....	....	1	....	1	......	....	......	1	......	......	....	....	....	1
....	....	....	....	....	....	....	....	2	......	....	......	....	......	1	1	....	....	....
....	....	....	....	....	....	1	....	1	3	....	......	1	1	......	1	....	....	....
....	....	....	....	....	....	1	....	3	2	1	3	1	2	5	1	3	5	1
....	....	....	....	....	....	....	....	2	2	....	1	....	1	4	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	1	....	1	2	....	....	....	1
....	....	....	....	....	....	....	....	4	6	....	2	2	4	3	1	4	2	2
....	....	....	....	....	....	....	....	1	1	....	1	1	2	1	....	2	1	....
....	....	....	1	....	1	2	....	4	3	....	1	3	4	2	1	2	1	2
....	....	....	....	....	....	....	....	1	......	....	......	....	......	......	....	1	....	....
....	....	....	....	....	....	....	....	1	1	....	1	....	......	......	....	1	1	....

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
HUDSON VALLEY DIST.—(*Con.*)									
Montgomery	5,259	8	......	4	40.0	1	200	....	....
Haverstraw	7,714	17	......	5	30.0	4	235	....	....
Nyack	5,603	6	......	1	16.7	0	......	....	....
Ramapo	6,600	7	......	1	12.8	1	128	....	....
Rest of district	275,000	320	14.0	45	14.0	35	110	1	14
ADIRONDACK AND NORTH'N DISTRICT									
Totals	390,000	472	14.2	105	22.2	70	148	1	21
WATERTOWN	17,000	43	......	13	30.0	13	300	....	3
Ellisburgh	4,223	4	......	0	......	0	......	....	....
Cape Vincent	3,000	2	......	1	50.0	1	500	....	....
Clayton	4,250	5	......	1	20.0	0	......	....	....
OGDENSBURG	12,000	24	......	8	33.2	6	250	....	1
Gouverneur	6,000	5	......	1	20.0	1	200	....	....
Potsdam	4,000	7	......	0	......	0	......	....	....
Canton	6,013	16	......	5	31.5	4	250	....	....
Malone	5,000	13	......	2	15.3	4	305	....	1
Plattsburg	8,400	9	......	3	33.3	2	222	....	....
Glens Falls	12,500	22	......	8	36.4	5	225	....	2
Whitehall	4,500	9	......	5	55.5	2	222	....	....
Fort Edward	4,500	12	......	1	8.3	0	......	....	....
Kingsbury	5,112	8	......	0	......	0	......	....	....
Granville	5,181	4	......	1	25.0	0	......	....	....
Greenwich	4,500	7	......	0	......	0	......	....	....
Lowville	4,000	5	......	1	20.0	1	200	....	1
Rest of district	280,000	277	12 0	55	20.0	31	112	1	13
MOHAWK VALLEY DISTRICT									
Totals	395,000	501	14.5	108	21.5	69	150	3	19
SCHENECTADY	31,682	45	......	22	48 8	15	333	....	1
Cobleskill	3,436	6	......	0	......	0	......	....	....
AMSTERDAM	20,000	13	......	3	23 0	1	73	....	....
Fort Plain	3,000	......	......	......	......	......	......	....	....
JOHNSTOWN	7,768	10	......	2	20.0	1	100	....	....
GLOVERSVILLE	15,000	19	......	3	15.8	3	158	1	....
LITTLE FALLS	12,000	15	......	2	13.3	4	265	....	3
Herkimer	5,150	3	......	1	33.3	1	333	....	1
Ilion	4,057	7	......	3	12.8	0	......	....	....
UTICA	56,383	86	......	27	31.4	11	128	1	....
Whitestown	5,225	7	......	1	12.8	1	128	....	1
ROME	14,000	18	......	1	5.5	0	......	....	....
Boonville	3,512	2	......	0	......	0	......	....	....
Camden	3,675	5	......	1	20.0	0	......	....	....
Waterford	5,522	6	......	0	......	2	333	....	2
Mechanicville	3,000	6	......	1	16.7	1	167	....	....
Ballston Spa	3,527	2	......	0	......	0	......	....	....
Saratoga Springs	12,500	20	......	8	40 0	1	50	1	....
Rest of district	192,000	231	14.0	33	14.5	28	121	....	11
SOUTHERN TIER DISTRICT									
Totals	425,000	475	13.5	70	14 8	40	83	2	16
BINGHAMTON	45,000	55	......	6	10.0	4	66	1	1
Owego	6,000	6	......	1	16 7	0	......	....	....
Candor	3,525	6	......	0	......	1	166	....	1
Waverly	4,123	6	......	0	......	1	166	....	1
ELMIRA	40,000	44	......	2	8.5	5	114	1	4

FOR DECEMBER—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	**Unclassified**
....	....	....	....	....	....	....	1	....	1	....	1	....	1	2	....	....	....	2
....	....	1	....	....	....	3	....	....	1	....	2	1	3	2	....	1	....	3
....	....	....	....	....	....	....	....	2	1	....	....	....	1	2	1	....	....	....
....	....	....	....	....	....	1	....	1	2	....	....	2	....	....	....	....	....	1
2	....	2	2	....	2	8	4	30	32	2	31	19	37	60	8	7	27	33
....	....	1	18	....	2	18	9	58	51	4	41	21	45	69	13	13	39	
....	....	....	7	....	....	....	3	4	3	....	1	4	7	4	....	1	1	
....	....	....	....	....	....	....	....	....	....	....	....	1	....	1	....	....	2	....
....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....	....
....	....	....	....	....	....	....	....	....	1	....	2	....	....	....	....	....	2	....
....	....	....	1	....	....	3	1	5	2	....	2	1	3	2	....	1	....	2
....	....	....	....	....	....	1	....	....	....	....	1	....	....	1	....	....	....	2
....	....	....	....	....	....	....	....	....	3	....	....	....	....	....	....	1	1	2
....	....	....	4	....	....	....	....	6	....	....	1	....	1	2	....	1	....	1
....	....	....	....	....	....	2	1	1	1	....	2	....	1	....	1	....	1	2
....	....	....	....	....	....	2	....	2	1	....	1	....	....	....	....	1	2	....
....	....	1	....	....	2	....	....	1	2	1	2	1	1	3	2	....	2	2
....	....	....	....	....	....	2	....	2	....	....	....	1	1	2	....	....	....	1
....	....	....	....	....	....	....	....	2	1	....	1	....	....	5	....	1	1	1
....	....	....	....	....	....	....	....	2	....	....	2	....	1	2	....	1	....	....
....	....	....	....	....	....	....	....	3	....	....	1	....	....	....	....	....	....	....
....	....	....	....	....	....	....	....	1	2	....	....	....	1	1	....	....	1	1
....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	1	....	1	....
....	....	....	6	....	....	8	3	29	34	3	25	13	29	44	9	6	25	29
....	2	1	22	1	4	13	4	79	41	1	44	23	60	68	32	12	30	42
....	1	....	12	....	....	1	....	7	5	....	3	2	2	3	....	2	1	5
....	....	....	....	....	....	....	....	1	....	....	....	....	3	....	....	1	1	....
....	....	....	....	....	....	1	....	1	2	....	2	....	3	1	3	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
....	....	....	....	1	....	....	....	....	2	....	4	....	1	2	....	....	....	....
....	1	....	1	....	....	....	....	1	1	....	3	....	3	3	1	....	1	3
....	....	....	....	....	....	....	1	3	1	....	2	1	1	....	....	1	....	2
....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1	....	....	....
....	....	....	....	....	....	....	....	2	7	....	....	....	....	2	3	....	....	....
....	....	1	....	....	3	3	3	18	....	1	3	3	10	15	6	4	2	6
....	....	....	....	....	....	....	....	1	1	....	1	....	1	....	....	....	2	1
....	....	....	....	....	....	....	....	3	....	....	4	....	4	3	1	....	....	2
....	....	....	....	....	....	....	....	1	2	....	....	....	....	....	....	....	1	....
....	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	1
....	....	....	....	....	....	....	....	1	2	....	....	....	2	....	1	....	....	....
....	....	....	....	....	....	1	....	....	....	....	1	....	1	....	....	....	....	1
....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1	....
....	....	....	....	....	....	....	....	3	4	....	....	4	3	2	....	....	....	3
....	....	....	9	....	1	7	....	35	14	....	20	13	27	36	16	4	21	17
....	....	4	2	....	5	8	3	59	26	4	34	35	65	71	29	33	46	33
....	....	....	....	....	....	2	....	9	1	1	4	6	4	15	2	1	5	3
....	....	....	....	....	....	....	....	....	1	....	2	....	....	....	1	....	1	1
....	....	....	....	....	....	....	....	....	....	....	1	3	....	....	....	....	....	1
....	....	....	....	....	....	....	....	1	....	....	1	....	1	1	1	....	....	....
....	....	....	....	....	....	....	....	8	5	....	1	5	4	7	2	....	5	2

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
SOUTHERN TIER DIST.—(*Con.*)									
Horseheads	3,319	7	......	0	......	0	......	....	....
HORNELLSVILLE	12,000	10	......	3	30.0	0	......	....	....
Bath	3,261	5	......	0	......	0	......	....	....
CORNING	10,025	17	......	6	35.3	5	300	....	....
Wellsville	5,033	6	......	0	......	0	......	....	....
OLEAN	10,000	17	......	3	17.6	1	60	....	....
Salamanca	3,700	4	......	1	25.0	0	......	....	....
DUNKIRK	14,000	12	......	4	33.3	0	......	....	....
JAMESTOWN	18,627	18	......	3	16.7	2	111	....	1
Westfield	3,000	......	......	......	......	......	......	....	....
Fredonia	3,400	13	......	4	30.0	1	75	....	....
Rest of district	250,000	249	12.0	37	15.0	20	81	....	8
EAST CENTRAL DISTRICT Totals	406,425	493	13.8	70	14.1	43	88	1	16
SYRACUSE	108,374	120	13.0	21	17.5	11	92	....	1
Baldwinsville	3,040	6	......	0	......	0	......	....	....
De Witt	5,182	6	......	0	......	1	167	....	1
CORTLAND	8,600	14	......	2	14.3	2	143	....	2
Homer	3,000	5	......	0	......	0	......	....	....
Oneida	6,100	9	......	1	11.1	0	......	....	....
Hamilton	4,110	9	......	1	11.1	1	111	....	....
Cazenovia	3,803	4	......	1	25.0	0	......	....	....
Brookfield	3,235	3	......	1	33.3	1	......	....	1
Norwich	6,000	10	......	0	......	0	333	....	....
Oneonta	8,000	10	......	2	20.0	0	......	....	....
Worcester	2,670	......	......	......	......	......	......	....	....
Cooperstown	3,000	5	......	1	20.0	0	......	....	....
Walton	4,811	......	......	......	......	......	......	....	....
Delhi	3,000	7	......	1	14.3	0	......	....	....
Liberty	3,500	9	......	0	......	0	......	....	....
Rest of district	230,000	276	13.7	39	18.3	27	100	1	11
WEST CENTRAL DISTRICT Totals	325,000	382	13.8	44	11.5	36	95	2	22
AUBURN	35,000	49	......	7	14.5	6	125	....	2
ITHACA	13,460	18	......	1	5.5	1	55	....	1
Hector	4,832	5	......	1	20.0	0	......	....	....
Waterloo	4,350	7	......	0	......	1	142	....	1
Seneca Falls	6,500	9	......	1	11.1	0	......	....	....
GENEVA	11,800	12	......	3	25.0	0	......	....	....
Canandaigua	5,868	......	......	......	......	......	......	....	....
Manchester	4,181	14	......	2	14.2	1	70	....	1
Phelps	5,150	4	......	0	......	1	250	....	1
Penn Yan	4,800	9	......	0	......	1	111	....	1
Batavia	7,221	10	......	3	30.0	1	100	1	....
Dansville	3,758	4	......	0	......	1	250	....	1
Le Roy	3,000	2	......	0	......	0	......	....	....
Warsaw	4,700	6	......	1	16.7	0	......	....	....
Rest of district	212,000	233	13.0	25	10.7	23	98	1	14
LAKE ONTARIO AND WESTERN DISTRICT Totals	860,272	983	13.5	239	23.6	118	112	6	25
BUFFALO	352,219	409	13.9	115	28.0	58	141	3	14
TONAWANDA	9,000	3	......	1	33.3	1	333	1	....
Amherst	4,000	11	......	3	27.3	3	273	....	....

FOR DECEMBER—(*Continued*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	1	1	....	......	1	2	......	....	1	1	....
....	....	....	....	....	....	....	....	3	2	....	......	....	2	2	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	2	1	1	....	1	....
....	....	3	....	....	....	2	....	......	1	1	......	2	3	......	2	1	1	1
....	....	....	....	....	....	....	....	1	......	....	1	1	1	......	....	....	2	....
....	....	....	....	....	....	....	1	1	2	....	......	....	3	6	....	2	1	1
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	1	2	....	1
....	....	....	....	....	....	....	....	2	......	....	3	1	2	1	1	1	1	....
....	....	....	....	....	1	....	....	2	4	....	2	....	2	1	1	....	2	2
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	1	....	....	1	......	....	2	1	......	......	....	7	....	1
....	....	1	2	....	3	4	2	30	9	2	17	15	39	37	17	18	25	20
....	....	....	5	2	1	7	11	43	43	5	40	35	64	68	37	19	49	47
....	....	....	....	1	....	4	5	9	13	1	12	8	19	11	11	4	6	15
....	....	....	....	....	....	....	....	1	......	....	1	....	1	2	1	....	....	....
....	....	....	....	....	....	....	....	1	......	1	......	....	1	1	....	1	....	....
....	....	....	....	....	....	....	....	2	......	....	......	2	1	3	1	....	1	2
....	....	....	....	....	....	....	....	1	1	....	......	2	1	......	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	......	....	1	1	....	1	....	4
....	....	....	1	....	....	....	....	......	1	....	......	1	2	4	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	1	....	......	2	....	....	....	1
....	....	....	....	....	....	....	....	......	1	....	......	1	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	......	....	......	1	2	2	2	1	1	....
....	....	....	....	....	....	....	....	2	1	....	......	1	1	2	1	1	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	1	....	1	......	....	....	1	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	......	....	1	....	1	1	2	....	....	1
....	....	....	....	....	....	....	....	3	5	....	......	....	......	1	....	....	....	....
....	....	....	4	1	1	3	6	20	19	3	24	19	33	38	19	11	39	24
....	....	1	1	1	....	6	3	28	42	5	29	30	55	47	21	22	35	32
....	....	....	1	1	....	1	1	2	7	1	4	2	3	7	4	3	4	6
....	....	....	....	....	....	....	....	3	......	....	......	5	3	2	2	1	1	....
....	....	....	....	....	....	....	....	1	......	....	1	....	......	1	....	....	1	1
....	....	....	....	....	....	....	....	......	......	....	1	....	3	......	....	....	2	....
....	....	....	....	....	....	....	....	1	4	....	......	....	1	1	....	1	....	1
....	....	....	....	....	....	....	....	......	......	....	......	1	4	2	....	2	1	2
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	1	....	2	....	1	2	1	2	2	2
....	....	....	....	....	....	....	....	1	......	....	1	....	1	......	....	....	....	....
....	....	....	....	....	....	....	....	1	1	....	1	1	1	......	....	....	2	1
....	....	....	....	....	....	....	....	2	1	....	......	1	......	1	....	2	1	1
....	....	....	....	....	....	....	....	......	......	....	......	....	1	1	1	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	....	......	1	....	....	1	....
....	....	....	....	....	....	....	....	......	1	....	2	....	1	1	....	....	....	1
....	....	1	....	....	....	5	2	17	27	4	17	20	36	28	13	11	20	17
....	....	11	10	3	10	29	24	117	86	7	63	58	129	120	53	55	65	112
....	....	5	....	1	5	12	18	57	26	4	21	22	43	51	26	23	29	49
....	....	....	....	....	....	....	....	......	1	....	......	....	1	......	....	....	....	....
....	....	1	....	....	....	1	1	......	......	....	1	....	1	2	....	....	1	3

SANITARY DISTRICTS	Estimated population	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Total deaths from zymotic diseases	Zymotic diseases per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever
LAKE ONTARIO AND WESTERN DISTRICT—(*Continued*)									
NORTH TONAWANDA	9,000	6	......	2	33.3	1	167	1	....
LOCKPORT	16,088	16	......	2	12.5	1	62	....	....
NIAGARA FALLS	16,000	26	......	8	30.7	5	200	1	1
Medina	4,500	5	......	0	......	0	......	....	....
Albion	4,536	7	......	1	14.2	0	......	....	....
Brockport	3,742	1	......	0	......	0	......	....	....
ROCHESTER	162,436	172	12.6	42	24.5	25	145	....	4
Palmyra	4,173	2	......	1	50.0	0	......	....	....
Newark	4,600	4	......	1	25.0	0	......	....	....
Lyons	6,127	8	......	0	......	0	......	....	....
Clyde	3,000	1	......	0	......	1	......	....	1
OSWEGO	22,000	41	......	7	17.0	2	50	....	1
Fulton	4,214	....	......	......	......	......	......	....	....
Richland	3,637	....	......	......	......	......	......	....	....
Rest of district	231,000	271	13.7	56	20.7	21	80	....	4
Totals for the state	7,110,000	9,889	16.5	2,310	23.3	1,039	105	37	263
Average for five years past	....	9,678	17.5	2,411	25.0	973	105	32	153

FOR DECEMBER—(*Concluded*)

ZYMOTIC DISEASES								OTHER CAUSES OF DEATH										
Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
....	....	....	....	....	....	....	....	......	1	....	......	....	1	1	1	1	....	....
....	....	....	....	....	....	1	....	3	2	....	......	....	3	1	2	....	3	1
....	....	....	....	....	....	2	1	......	1	....	5	1	5	4	....	3	1	1
....	....	....	....	....	....	....	....	......	1	....	......	1	......	......	....	1	1	1
....	....	....	....	....	....	....	....	2	......	....	......	....	1	1	1	....	1	1
....	....	....	....	....	....	....	....	......	......	....	......	....	1	......	....	....	....	....
....	....	1	9	1	3	6	1	18	19	3	12	12	25	20	6	5	11	16
....	....	....	....	....	....	....	....	......	......	....	......	....	1	1	....	...	....	....
....	....	....	....	....	....	....	....	......	2	....	1	1	......	......	....	....	....	....
....	....	....	....	....	....	....	....	1	......	...	......	....	2	2	1	....	1	1
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	...	....	....	1	....	5	6	....	4	3	7	5	3	1	1	4
....	....	....	....	....	....	....	....	......	......	....	......	....	......	......	....	....	....	....
....	....	....	....	....	....	....	....	......	......	....	......	...	......	......	....	....	....	....
....	....	4	1	1	2	6	3	31	27	....	19	18	38	32	13	21	16	35
16	7	60	81	21	53	358	143	1,587	1,082	78	733	793	970	1,113	413	467	454	1,160
25	1	70	83	26	61	399	123	1,756	1,089	72	623	719	963	1,007	353	472	469	1,182

SUMMARY OF MORTALITY OF THE STATE OF NEW YORK FOR THE YEAR 1900, AS PUBLISHED IN THE MONTHLY BULLETIN

Totals of Mortality of the State by Months

1900	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping cough
January	10,552	18 0	2,788	26.5	94	29	144	17	....	75	154	43	79
February	10,796	18.7	3,142	29.1	107	49	122	18	....	119	206	56	91
March	13,033	20.4	3,574	27.4	93	50	120	23	....	94	203	86	129
April	12,486	20.5	3,376	27.1	86	61	96	23	1	92	191	91	117
May	10,938	17.5	3,160	29.0	93	51	102	28	1	71	161	52	111
June	9,444	15.5	3,101	33.0	120	39	65	26	1	44	120	40	71
July	11,641	19.5	4,728	40.6	235	53	101	17	1	43	92	22	113
August	11,047	18.5	4,223	38.3	237	47	174	37	2	22	49	11	86
September	10,251	16.5	3,760	36.7	220	41	245	41	....	12	21	16	66
October	9,676	16.0	2,864	29.6	146	36	283	37	....	24	24	13	54
November	8,715	15.0	2,178	25.0	110	38	233	26	1	33	32	12	50
December	9,889	16.5	2,310	23.3	105	37	263	16	7	60	81	21	53
Totals for the year	128,468	17.8	39,204	30.5	137	531	1,948	309	14	689	1,333	466	1,020
Average for 5 years past	120,457	18.5	37,136	31.0	146	596	1,604	377	14	808	1,045	316	1,007
Totals for 1899	121,821	17.3	35,381	29.0	120	702	1,604	348	21	730	756	353	886

TOTALS OF THE MORTALITY OF THE STATE BY MONTHS—(*Concluded*)

1900	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
January	352	95	2,100	1,140	121	686	838	968	1,138	382	461	460	1,270
February	352	137	2,402	1,131	107	543	873	866	1,109	396	471	463	1,285
March	342	167	3,137	1,363	160	689	982	1,132	1,301	443	437	591	1,585
April	277	117	2,962	1,302	125	852	860	1,080	1,270	410	469	578	1,509
May	290	157	1,899	1,284	96	786	797	983	1,200	392	581	492	1,405
June	243	477	1,058	1,070	90	874	705	807	1,057	397	637	358	1,265
July	208	2,082	726	1,102	75	1,446	727	798	1,016	431	857	377	1,354
August	198	1,985	577	1,047	84	1,244	681	773	995	436	777	379	1,443
September	154	1,656	645	980	72	1,143	727	705	905	405	605	420	1,392
October	228	712	967	1,078	62	955	760	830	934	376	540	429	1,334
November	304	231	1,172	1,011	66	694	758	764	955	390	412	401	1,132
December	358	143	1,587	1,082	78	733	793	970	1,113	413	467	454	1,160
Totals for the year	3,306	7,959	19,232	13,590	1,136	10,644	9,501	10,676	12,993	4,871	6,714	5,402	16,134
Average for 5 years past	3,818	8,017	17,023	13,116	945	9,415	8,158	10,497	12,450	4,079	6,336	5,610	15,226
Totals for 1899	2,786	6,480	17,938	13,412	877	10,163	9,064	10,606	13,177	4,533	6,093	6,068	15,324

TOTALS OF MORTALITY IN THE SANITARY DISTRICTS FOR THE YEAR

DISTRICTS	Total number of deaths	Representing annual death rate per 1,000 population of—	Deaths under five years	Percentage of deaths under five years to total deaths	Zymotic deaths per 1,000 deaths from all causes	Cerebro-spinal meningitis	Typhoid fever	Malarial diseases	Smallpox	Scarlet fever	Measles	Erysipelas	Whooping-cough
Maritime	75,989	19.5	27,625	36.3	135	310	760	240	11	479	863	325	616
Hudson valley	12,432	17.4	2,870	23.0	150	55	350	27	....	4.	134	36	120
Adirondack and Northern	5,430	14.2	1,083	20.0	143	36	152	5	....	23	48	25	24
Mohawk valley	6,164	15.5	1,375	22.3	139	26	139	5	2	18	67	15	50
Southern tier	5,918	14.0	1,003	17.0	123	21	141	10	....	28	34	14	42
East central	5,796	14.0	1,028	17.7	124	22	110	10	....	19	47	22	38
West central	4,461	14.0	654	14.6	113	13	91	5	....	15	24	6	27
Lake Ontario and Western	12,278	14.0	3,240	26.3	148	48	205	7	1	66	116	23	103

TOTALS OF MORTALITY IN THE SANITARY DISTRICTS FOR THE YEAR—(*Concluded*)

DISTRICTS	Croup and diphtheria	Diarrheal diseases	Acute respiratory diseases	Consumption	Puerperal diseases	Diseases of digestive system (not diarrheal)	Diseases of urinary system	Diseases of circulatory system	Diseases of nervous system	Cancer	Accidents and violence	Old age	Unclassified
Maritime	2,393	4,292	13,240	8,650	744	6,804	6,115	4,931	6,049	2,449	4,150	1,456	11,112
Hudson valley	259	843	1,606	1,373	75	857	781	1,276	1,668	476	531	731	1,193
Adirondack and Northern	74	393	616	539	46	399	318	573	678	234	231	470	546
Mohawk valley	132	405	713	559	46	479	386	625	798	295	331	453	620
Southern tier	115	3[illegible]3	648	452	52	448	414	683	794	287	308	544	560
East central	61	395	583	513	34	470	378	720	760	329	276	474	535
West central	70	253	418	375	28	346	285	594	658	232	224	415	382
Lake Ontario and Western	202	1,055	1,408	1,129	111	841	824	1,274	1,588	569	663	850	1,186

REMARKS—The number of deaths from all causes reported for the year in the Monthly bulletin is 128,468; this exceeds the mortality of 1899 by 6,647 and the average of the past five years by 8,000. Besides these reported deaths there were 1,600 returned too late for report, making the death rate for the year 18.5, which is the estimated average rate for past five years. The increase over last year has been in all the sanitary districts except those of the central and southern parts of the state, and is largest in the maritime district where there were 6,000 more deaths than in 1899.

The infant mortality was 4,000 greater than last year, the increase being general, but the percentage of deaths under five years, 30.5, is the average of past years. The midsummer rate was low.

The zymotic mortality was 13.7 per cent of the total against an average of 14.6, grippe, not included, relatively lowering it. Typhoid fever was unusually prevalent in the autumn, causing 1,948 deaths, 350 above the average, of which 200 were in the maritime district. Measles prevailed to excess in all parts of the state, the 1,338 deaths being 300 above the average. Scarlet fever was less than usually prevalent Diphtheria, increasing from the low prevalence of recent years, had yet a mortality 500 below the average. Diarrheal diseases caused the average mortality of about 8,000 deaths, notably increasing the late summer and autumn mortality of the rural parts of the state rather than the urban, the maritime district having had fewer diarrheal deaths than the average.

Smallpox was brought from outside to seventeen places during the first half of the year, without spread. From August to November the state was free from it; then a traveling minstrel troupe left it at three localities in the eastern part of the state, whence it spread, and at the end of the year it exists at five places and their vicinities, with promise of further spread. Of 14 deaths, 4 have occurred outside New York city. In December one death from smallpox occurred in Schenectady and one in Gloversville besides five in New York city.

The grippe epidemic of the year was unusually severe, lasted six months and probably added 11,500 to the mortality; it appears in the deaths from local diseases, chiefly the acute respiratory the number of which consequently is very high, and in unclassified causes of death.

LANE MEDICAL LIBRARY

This book should be returned on or before
the date last stamped below.

I121 New York (State) Dept.
B1 of health. 97435
v.21 Annual report.
1900

NAME	DATE DUE

9-41-3M